

ICAPS'21 Conference Report

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Susanne Biundo Michael Katz

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Abstract

This report describes the organization of ICAPS'21, the *31st International Conference on Automated Planning and Scheduling*, which was held virtually from Guangzhou, China on August 2-13.

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1 Conference committee

- **Conference Chairs:** Hankz Hankui Zhuo, Qiang Yang, Minh Do
- **Program Chairs:** Robert P. Goldman, Susanne Biundo, Michael Katz
- **Advisor:** Subbarao Kambhampati
- **Planning and Learning Track Chairs:** Sinno Jialin Pan, Scott Sanner
- **Application Track Chairs:** Kartik Talamadupula, Neil Yorke-Smith
- **Robotics Track Chairs:** Andrea Orlandini, Xiaoping Chen, Yu Zhang
- **Journal Track Chairs:** Malte Helmert, Hana Rudová
- **Tutorial Chairs:** Jieping Ye, Michael Cashmore
- **Workshop Chairs:** J. Benton, Yang Gao, Eva Onaindia
- **Systems Demo Chairs:** Tathagata Chakraborti, Hang Ma
- **Doctoral Consortium Chairs:** Jeremy Frank, Sarah Keren
- **Competition Chairs:** Tathagata Chakraborti, Rong Pan, Jianye Hao
- **Publicity Chairs:** Zaiqing Nie, Sarath Sreedharan
- **Sponsorship Chairs:** William Yeoh, Jianye Hao, Matthijs Spaan
- **Website Chairs:** Tathagata Chakraborti, Sarath Sreedharan, Yuyong Hu, Weixin Wu, Yingkai Xiao, Minghao Qiu
- **Virtual Conference Technology Advisor:** Daniel Gnad
- **Virtual Conference Arrangement Chairs:** Zhanhao Xiao, Chao Yu, Yuechang Liu
- **Virtual Conference Arrangement Members:** Zhanwen Zhou, Kebing Jin, Yuyong Hu, Weixin Wu, Yingkai Xiao, Minghao Qiu

2 Important Dates

- Main Track & Planning and Learning Track & Application Track & Robotics Track
 - Submission deadline: December 18, 2020
 - Notification: February 16, 2021
- Journal Track
 - Submission deadline: April 18, 2021
 - Notification: May 10, 2021
- Doctoral Consortium
 - Submission deadline: May 31 2021
 - Notification: June 30 2021
- System Demonstrations

- Submission deadline: June 7 2021
 - Notification: July 7 2021
- Competition Proposal
 - Submission deadline: Jan 26, 2021
 - Notification: Jan 31, 2021
- Workshop Proposals
 - Submission deadline: 28 December 2020
 - Notification: 19 April 2021
- Award Nominations
 - Submission deadline: 15 Feb 2021
- Tutorial Proposals
 - Submission deadline: 30 June 2021
 - Notification: 2 July 2021

3 Conference format/issues

The process of getting ICAPS to Guangzhou was a long story, starting in 2016. That year, Rao and I (Hankz) brainstormed the idea of having ICAPS in Guangzhou (see Figure 1). After we had submitted the proposal,



Figure 1: Rao and Hankz Brainstorming the idea of having ICAPS in Guangzhou

in 2019, Minh Do, who was the ICAPS council liaison investigated the conference venue (see Figure 2). Due to the covid-19 pandemic, the organizing team had a long discussion about (1) postponing the conference date, (2) having a hybrid conference, or (3) having a full virtual conference. We conducted a survey to collect preferences from the planning community and eventually we decided to have a virtual conference, after a 1.5-month postponement. So we started to do research on many virtual conference tools. We finally decided to use a combination of Gather, Slideslive, Zoom, and Rocket.Chat. Gather is for social networking, Slideslive is for online streaming and prerecorded videos, Zoom is for online video discussion, and Rocket.Chat is for online/offline text chatting.

We had to build a technical team for creating the Gather space, which includes virtual environment framework (see Figure 3), guide for attendees (Figure 4), session rooms (Figure 5), poster rooms (Figure 6), and bar rooms (Figure 7).

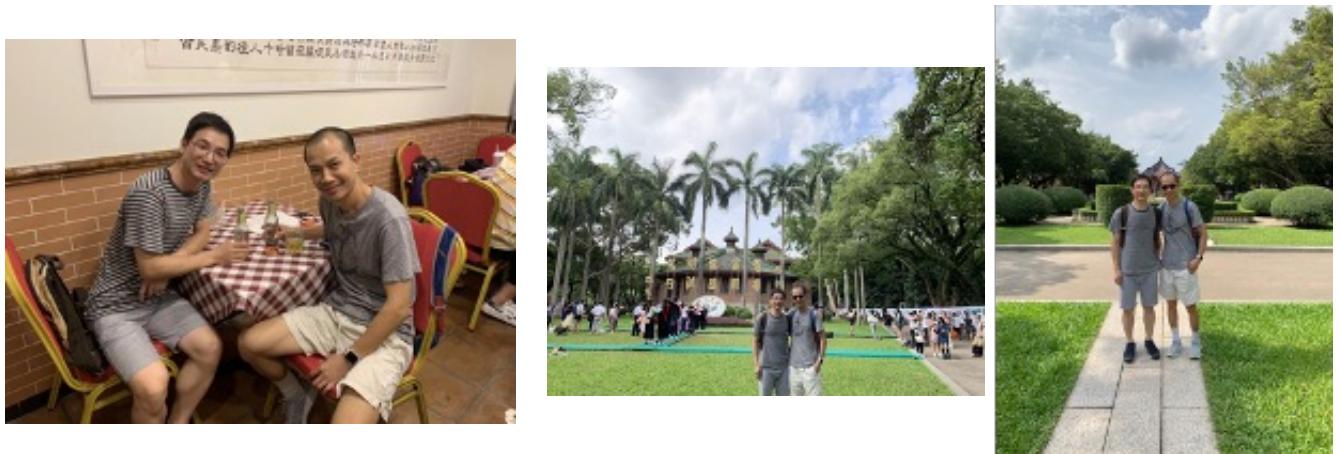


Figure 2: ICAPS council liaison investigating the conference venue

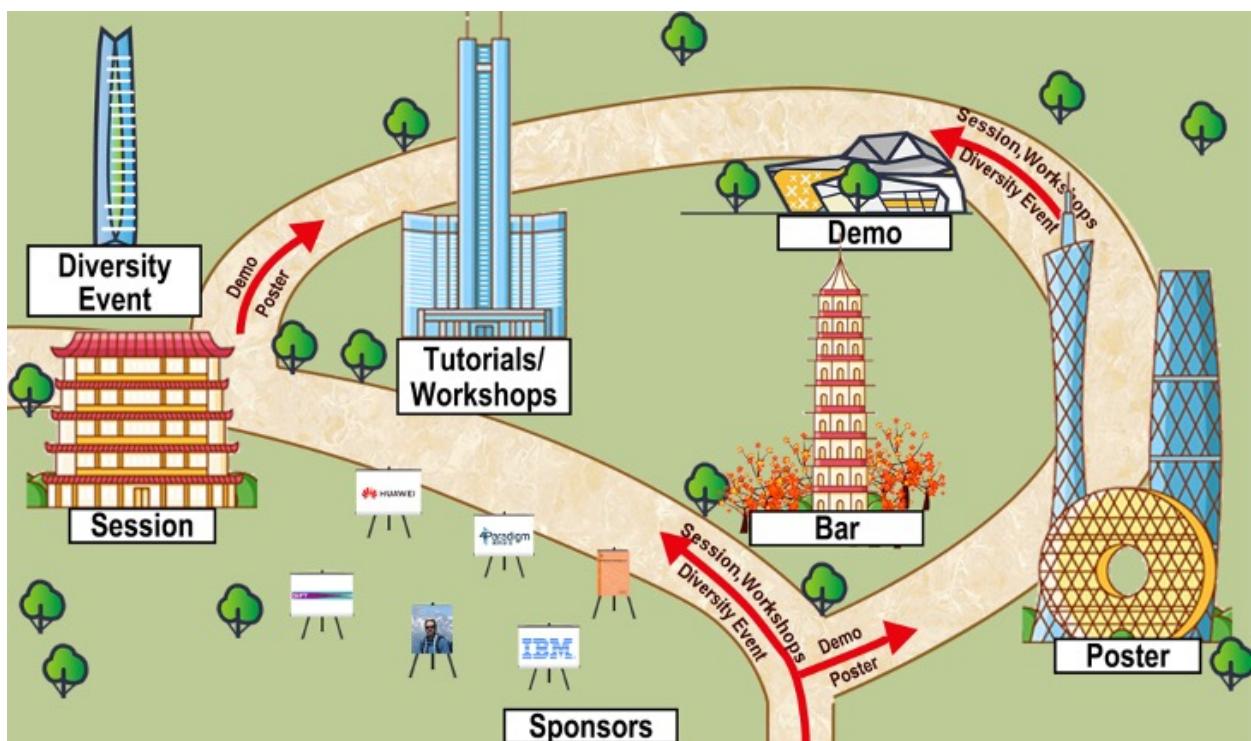


Figure 3: The Gather.town design for the conference.

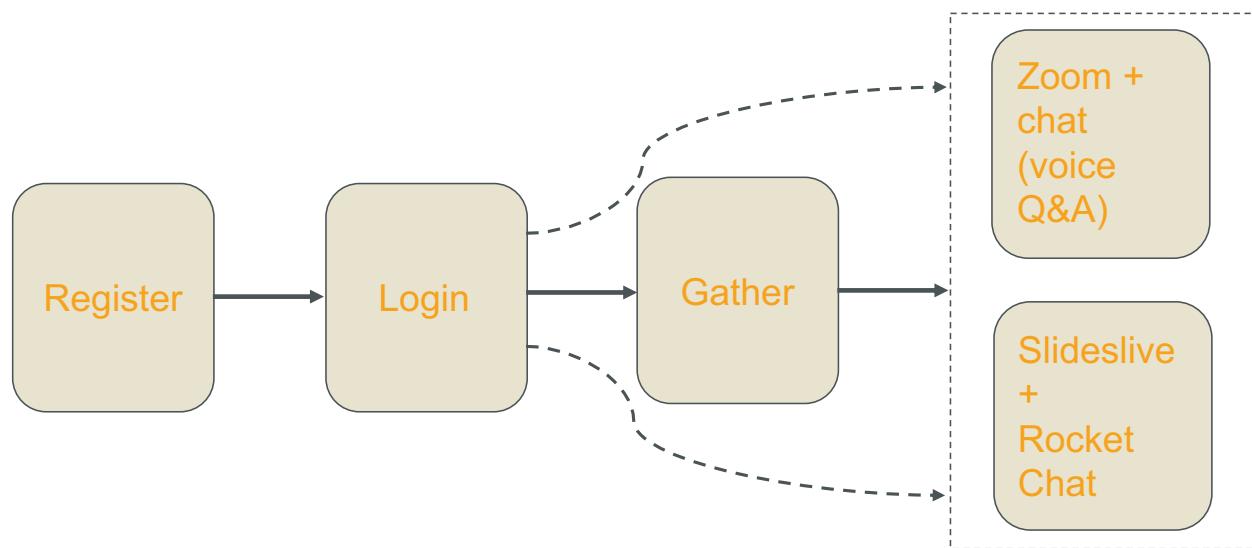


Figure 4: The guide for attending the conference.

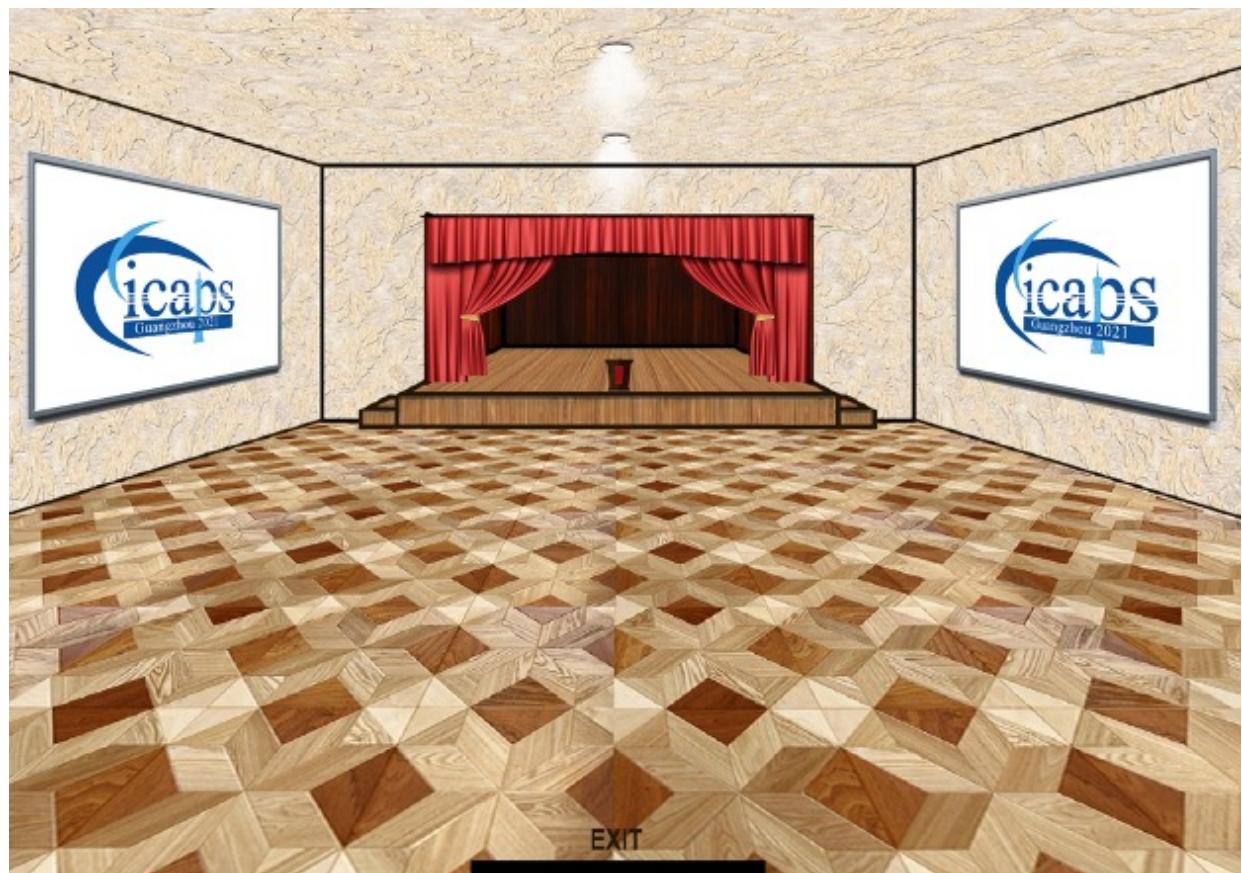


Figure 5: The session room.

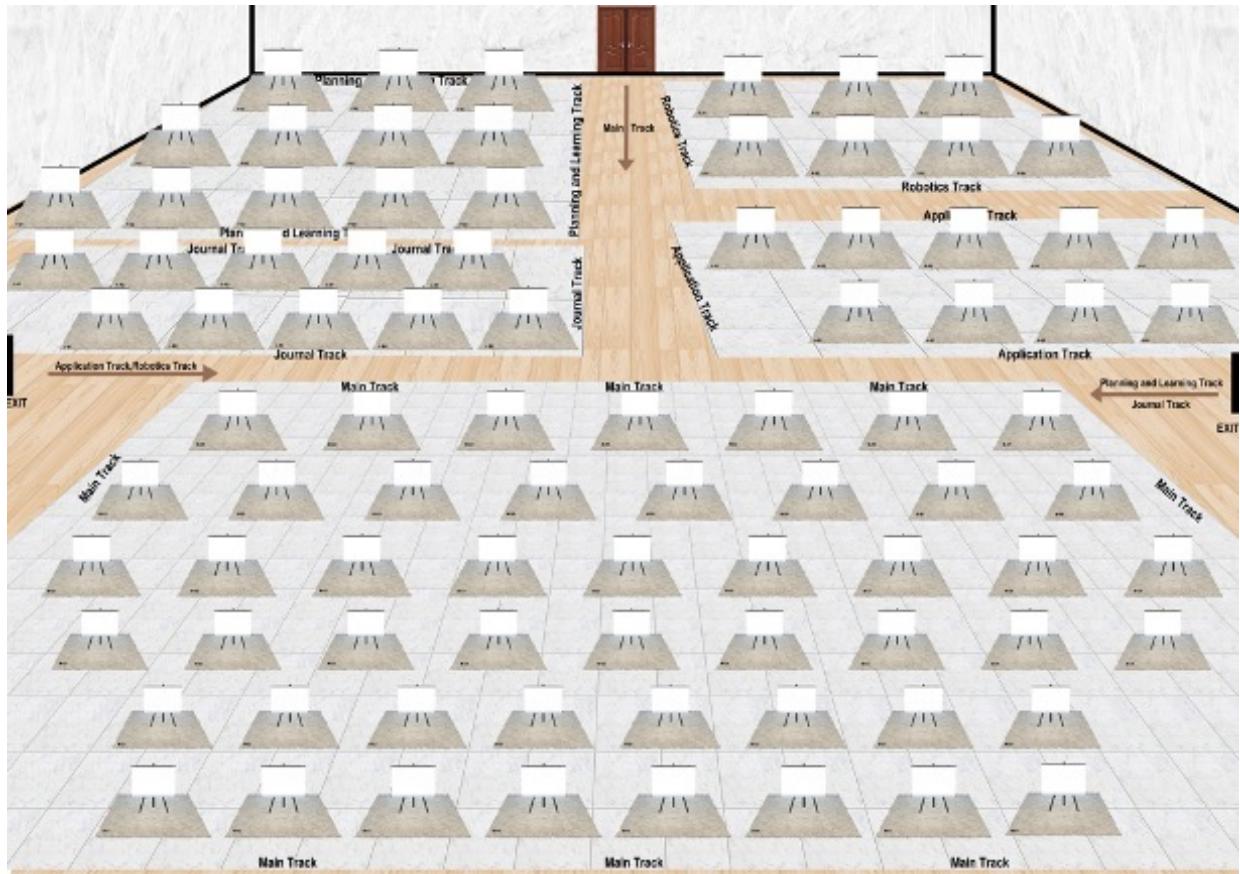


Figure 6: The poster room.



Figure 7: The bar room.

To better estimate conference attendance, we decided to charge a small registration fee (50 USD for non-students and 20 USD for students). This meant we needed to build a registration system for registrants to pay the fees and record their preferences for sessions and workshops, and to select the size of their T-shirt gifts, which required lots of labour. Note that shipping the gifts worldwide was painful too, especially during the pandemic. Not all countries were reachable for some shipping companies.

Lessons learned I (Hankz) would suggest removing the parts of building registration system and shipping T-shirts, which could save a lot of effort.

4 Sponsors

We would like to thank the sponsors as shown in Figure 8.

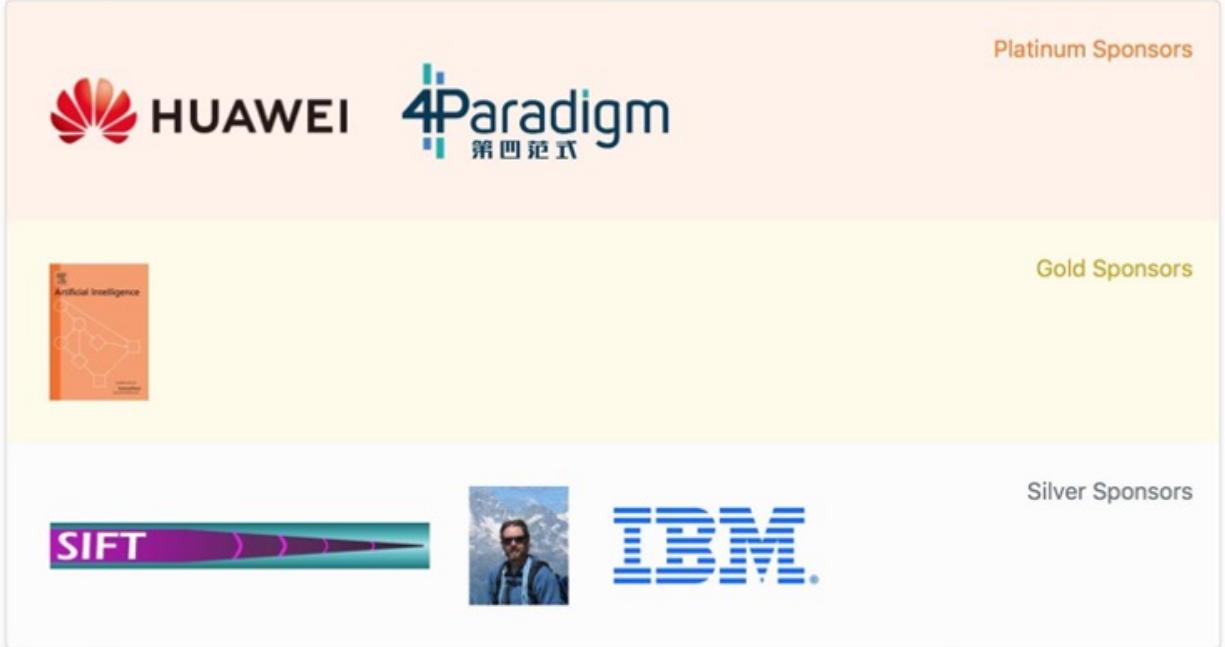


Figure 8: Different tiers of sponsors

5 Submissions and reviewing

5.1 Submission information

The program committee considered submissions of two types: long papers – 8 pages for text and 1 for references – and short papers – 4 pages text and 1 for references. Submissions were accepted for each of the following tracks: main, planning and learning, robotics, and novel applications. These four tracks made up the main program. In addition, the conference featured a journal track and system demonstrations (see Table 1).

Track	Submitted	Accepted	Desk Rejected	Acceptance Rate
Main program	299	77	44	30.2%
Journal	12	10	0	83.3%
System Demonstrations	24	19	2	86.3%

Table 1: Submissions by track and disposition.

5.2 Reviewing process

Each paper submitted to the main program was reviewed against the standard criteria: significance, soundness, novelty, scholarship, and clarity, as well as reproducibility, technological maturity and suitability for its special track (if applicable). Every submission was expected to meet the high standards of ICAPS. Each submission was reviewed by three program committee members, and recommendations of acceptance/rejection were made by the senior program committee. The acceptance decisions were made by program chairs, jointly with the track chairs for their respective tracks. The accepted papers present the latest theoretical

and empirical advances in planning and scheduling. All accepted papers were available online prior to the conference.

5.3 Program committee

The program committee of the main program consisted of 169 program committee members for the main track and three special tracks, as well as 21 senior program committee (SPC) members. The SPC was responsible only for the main track. The track chairs for the special tracks took the role of senior program committee for their respective tracks.

5.3.1 PC

First Name	Last Name	First Name	Last Name	First Name	Last Name	First Name	Last Name
Mohammad	Abdulaziz	Alexander	Shleyfman	David	Smith	Jiaoyang	Li
Vidal	Alcazar	Marcel	Steinmetz	Stephen	Smith	Alan	Lindsay
Masataro	Asai	Roni	Stern	Matthijs	Spaan	Bryan Kian Hsiang	Low
Jorge A.	Baier	Tiago Stegun	Vaquero	David	Speck	Meghna	Lowalekar
Gregor	Behnke	Russell	Knight	Mark	Boddy	Hang	Ma
Daniel	Borrajo	Marco	Roveri	Biplav	Srivastava	Adrien	Maillard
Alberto	Camacho	Sarath	Sreedharan	Siddharth	Srivastava	Masoumeh	Mansouri
Michael	Cashmore	Prasad	Tadepalli	Nathan	Sturtevant	Francisco S.	Melo
Isabel	Cenamor	William	Yeoh	Florent	Teichteil-Koenigsbuch	Fabio	Mercorio
Amedeo	Cesta	Roman	Bartak	Mauro	Vallati	Lenka	Mudrich
Tathagata	Chakraborti	Adi	Botea	Kanna	Rajan	Nysret	Musliu
Andrew	Coles	Ronen	Brafman	Zachary	Rubinstein	Tim	Niemueller
Augusto B.	Correa	Olivier	Buffet	Hany	Abdulsamad	Santiago	Ontanon
Mathijs	De Weerd	Minh	Do	Diego	Aineto	Sunandita	Patra
Rebecca	Eifler	Stefan	Edelkamp	Zlatan	Ajanovic	Zinovi	Rabinovich
Salome	Eriksson	Alan	Fern	Aliakbar	Akbari	Aswin	Raghavan
Ariel	Felner	Chris	Geib	Nikhil	Barghava	Riccardo	Rasconi
Patrick	Ferber	Florian	Geisser	Leliane N.	Barros	Francesco	Riccio
Maximilian	Fickert	Alfonso Emilio	Gerevini	Joydeep	Biswas	Sandhya	Saisubramanian
Daniel	Fiser	Daniel	Gnad	Arthur	Bit-Monnot	Miguel A.	Salido
Guillem	Frances	Charles	Gretton	Kyle	Booth	Dominik	Schreiber
Santiago	Franco	Patrik	Haslum	Jonathan	Cacace	Tim	Schulte
Simone	Fratini	Malte	Helmert	Gerard	Canal	Javier	Segovia-Aguas
Rick	Freedman	Sergio	Jimenez Celorio	Yaniel	Carreno	Premysl	Sucha
Angel	Garcia-Olaya	Emil	Keyder	Jianda	Chen	Elisa	Tosello
Robert	Givan	Akihiro	Kishimoto	Caroline	Ponzioni Carvalho Chanel	Felipe	Trevizan
Nick	Hawes	Antonin	Komenda	Shih-Fen	Cheng	Alessandro	Umbrico
Laura	Hiatt	Philippe	Laborie	Andre Augusto	Cire	Martijn	Van Otterlo
Daniel	Hoeller	Daniele	Magazzeni	Marcello	Cirillo	Pradeep	Varakantham
Felix	Ingrand	Radu	Marinescu	Riccardo	De Benedictis	Ramiro	Varela
Joseph	Kim	Robert	Mattmuller	Lavindra	de Silva	Ying	Wen
Daniel Laszlo	Kovacs	Lee	Mccluskey	Jana	Doppa	Zhanhao	Xiao
Sofia	Lemons	Hector	Palacios	Alberto	Finzi	Konstantin	Yakovlev
Carlos	Linares Lopez	Adrian	Pearce	Supriyo	Ghosh	Nan	Ye
Felipe	Meneguzzi	Ron	Petric	Mark	Giuliano	Haiyan	Yin
Andrea	Micheli	Florian	Pommerening	Alban	Grastien	Chao	Yu
Karen	Myers	Mark	Roberts	Luca	Iocchi	Jingjin	Yu
Angelo	Oddi	Wheeler	Ruml	Ferdian	Jovan	Peng	Yu
Simon	Parkinson	Alessandro	Saetti	Anagha	Kulkarni	Hao	Zhang
Hana	Rudova	Enrico	Scala	Akshat	Kumar	Shiqi	Zhang
Oren	Salzman	Jendrik	Seipp	T. K. Satisfi	Kumar		
Laura	Sebastia	Silvan	Sievers	Hanna	Kurniawati		
Ivan	Serina	Reid	Simmons	Matteo	Leonetti		

5.3.2 SPC

First Name	Last Name	First Name	Last Name	First Name	Last Name
Thomas	Keller	Sara	Bernardini	Alvaro	Torralba
Sven	Koenig	Miquel	Ramirez	Laura	Barbulescu
Blai	Bonet	Zongzhang	Zhang	J.	Benton
Ron	Alford	Eva	Onaindia	Alex	Fukunaga
Gabriele	Roeger	Pascal	Bercher	Chris	Beck
Erez	Karpas	Joerg	Hoffmann	Jeremy	Frank
Shirin	Sohrabi	Vicenc	Gomez	Anders	Jonsson

5.4 Schedule

5.4.1 Week 1

Monday: Doctoral consortium

Tuesday: Tutorials

- Trustworthy AI: A Computational Perspective
- Hands-on Introduction to dcss-ai-wrapper: A Dungeon Crawl Stone Soup API for AI Planning

Wednesday: Workshops Day 1

	Aug 4th 0:00	Aug 4th 1:00	Aug 4th 2:00	Aug 4th 3:00	Aug 4th 4:00	Aug 4th 5:00	Aug 4th 6:00	Aug 4th 7:00	Aug 4th 8:00	Aug 4th 9:00	Aug 4th 10:00	Aug 4th 11:00	Aug 4th 12:00	Aug 4th 13:00	Aug 4th 14:00	Aug 4th 15:00	Aug 4th 16:00	Aug 4th 17:00	Aug 4th 18:00	Aug 4th 19:00
HSDIP																				
WIPC																				
INTEX																				
XAIP																				
HPLAN																				
FINPLAN																				
PRL																				
KEPS																				
PLANROB																				
SPARK																				

Thursday: Workshops Day 2

	Aug 5th 0:00	Aug 5th 1:00	Aug 5th 2:00	Aug 5th 3:00	Aug 5th 4:00	Aug 5th 5:00	Aug 5th 6:00	Aug 5th 7:00	Aug 5th 8:00	Aug 5th 9:00	Aug 5th 10:00	Aug 5th 11:00	Aug 5th 12:00	Aug 5th 13:00	Aug 5th 14:00	Aug 5th 15:00	Aug 5th 16:00	Aug 5th 17:00	Aug 5th 18:00	Aug 5th 19:00
HSDIP																				
WIPC																				
INTEX																				
XAIP																				
HPLAN																				
FINPLAN																				
PRL																				
KEPS																				
PLANROB																				
SPARK																				

Friday: Workshops Day 3

	Aug 6th 0:00	Aug 6th 1:00	Aug 6th 2:00	Aug 6th 3:00	Aug 6th 4:00	Aug 6th 5:00	Aug 6th 6:00	Aug 6th 7:00	Aug 6th 8:00	Aug 6th 9:00	Aug 6th 10:00	Aug 6th 11:00	Aug 6th 12:00	Aug 6th 13:00	Aug 6th 14:00	Aug 6th 15:00	Aug 6th 16:00	Aug 6th 17:00	Aug 6th 18:00	Aug 6th 19:00
HSDIP																				
WIPC																				
INTEX																				
XAIP																				
HPLAN																				
FINPLAN																				
PRL																				
KEPS																				
PLANROB																				
SPARK																				

5.4.2 Week 2

NY		Mon	Tue	Wed	Thur	Fri
23		9 August 2021	10 August 2021	11 August 2021	12 August 2021	13 August 2021
0		Live Get-Together	Live Get-Together	Live Get-Together	Live Get-Together	Live Get-Together
1		S01 Search	S06 Search	S10 probabilistic/scheduling/ro	S15 Classical	S19 Execution/control
2		S02 Scheduling	S07 ND/OSP	S11 Hybrid/conformant	S16 Classical/search	S20 temporal/numeric/RL
3	Session I	S03 HTN	S08 Explainable/Richer formalis	S12 Pathfinding/Search	S17 Classical	S21 Representation/Generalize
4		Socializing				
5		Socializing				
6		Live Get-Together	Live Get-Together	Live Get-Together	Live Get-Together	Live Get-Together
7		S04 Classical/Pathfinding/Searc	S09 Classical/Search	S13 temporal/numeric/RL	S18 Scheduling	S22 Representation/POCL/mult
8	Session II	S05 Probabilistic / Opening re	Competitions	S14 RL	Community Meeting	S23 RL
9	Prime time	Manuela Veloso Invited Talk		Jieping Ye Invited Talk		Posters
10	Prime time	Industry Talks		Demos		
11	Prime time	Stefan Edelkamp Invited Talk	Demos/Diversity Event	Community Socializing	Richard Sutton Invited Talk	
12		Socializing		Diversity Event		
13		Socializing				
14		S01 Search	S07 ND/OSP	S12 Pathfinding/Search	S15 Classical	S19 Execution/control
15		S02 Scheduling	S06 Search	S11 Hybrid/conformant	S16 Classical/search	S20 temporal/numeric/RL
16	Session III	S03 HTN	S08 Explainable/Richer formalis	S10 probabilistic/scheduling/ro	S17 Classical	S21 Representation/Generalize
17		Live Get-Together	Live Get-Together	Live Get-Together	Live Get-Together	Live Get-Together
18		Socializing				
19		Socializing				
20		S04 Classical/Pathfinding/Searc	S09 Classical/Search	S13 temporal/numeric/RL	S18 Scheduling	S22 Representation/POCL/mult
21	Session IV	S05 Probabilistic	Live Get-Together	S14 RL	Live Get-Together	S23 RL
22		Live Get-Together	Live Get-Together	Live Get-Together	Live Get-Together	Live Get-Together

5.5 Paper statistics

5.5.1 Desk Rejects: Reasons and National Breakdowns

Decision	Country	Submitted	Rejected	Percentage
Anonymity breach	Any	299	24	8%
	China	62.66	11	17.6%
	Germany	18.53	3	16.2%
	United States	73.74	2	2.7%
Relevance	Any	299	9	3.0%
	China	62.66	7.18	11.5%
Length	Any	299	6	2.0%
	Canada	12.43	2.13	17.1%
	China	62.66	2.37	3.8%
Wrong or manipulated style	Any	299	4	1.3%
	China	62.66	3	4.8%
Total desk rejected		299	43	14.4%

Notes The breakdown of desk rejects by nation suggests there may be issues with our explanation of the submission requirements, due to language, unfamiliarity with the ICAPS community (in particular where Relevance is concerned), or some combination of these.

Desk rejections due to exceeding the length restrictions in some cases seem to be related to confusion about the 4+1 / 8+1 length specification. Is the +1 only for citations (and should the citations be pushed to a separate page in all cases), or can the text share the final page? Our Requirements should be clarified, taking into account the fact that authors may not read the requirements end to end and with sufficient care.

5.6 Awards

- Influential Paper Award**

FF-Replan: A Baseline for Probabilistic Planning

Authors: Sungwook Yoon, Alan Fern, and Robert Givan.

- **Best Paper Award**

Flexible FOND Planning with Explicit Fairness Assumptions

Authors: Ivan Rodriguez, Blai Bonet, Sebastian Sardina and Hector Geffner.

- **Best Paper Runner-Up Award**

S*: A Heuristic Information-Based Approximation Framework for Multi-Goal Path Finding

Authors: Kenny Chour, Sivakumar Rathinam, and R Ravi.

- **Best Paper Runner-Up Award**

Scheduling with Complete Multipartite Incompatibility Graph on Parallel Machines

Authors: Tytus Pikies, Krzysztof Turowski, and Marek Kubale.

- **Best Student Paper Award**

Knowledge Compilation for Nondeterministic Action Languages

Authors: Sergej Scheck, Alexandre Niveau, and Bruno Zanuttini.

- **Best Student Paper Runner-Up Award**

On the Compilability and Expressive Power of State-Dependent Action Costs

Authors: David Speck, David Borukhson, Robert Mattmüller, and Bernhard Nebel.

- **Best Student Paper Runner-Up Award**

Exploiting Cyclic Dependencies in Landmark Heuristics

Authors: Clemens Büchner, Thomas Keller, and Malte Helmert.

- **Best Undergraduate Student Paper Award**

Fully Observable Nondeterministic HTN Planning – Formalisation and Complexity Results

Authors: Dillon Chen, and Pascal Bercher.

- **People's Choice Best System Demonstration Award**

- Scalable Rail Planning and Replanning: Winning the 2020 Flatland Challenge

Authors: Jiaoyang Li, Zhe Chen, Yi Zheng, Shao-Hung Chan, Daniel Harabor, Peter J. Stuckey, Hang Ma, and Sven Koenig.

- Demos for a Course in Single-Agent Heuristic Search

Author: Nathan Sturtevant.

- A Planning.Domains Plugin for Heuristic Visualization

Authors: Caitlin Aspinall, Cam Cunningham, Ellie Sekine, and Christian Muise.

- **Best Dissertation Award**

Target Assignment and Path Planning for Navigation Tasks with Teams of Agents

Author: Hang Ma.

- **Best Dissertation Award Honorable Mention**

Planning under Uncertainty in Constrained and Partially Observable Environments

Author: Erwin Walraven.

- **Outstanding Senior Program**

- Thomas Keller

- **Outstanding Program Committee Members**

- Salomé Eriksson

- Gregor Behnke

- Tathagata Chakraborti

5.7 Proceedings

The ICAPS proceedings were published by AAAI Press and are available online.

6 Program

6.1 Doctoral consortium

The Doctoral Consortium (DC) provides Ph.D. students with the opportunity to interact closely with established researchers and to get feedback on their research, get advice on career possibilities, build a professional network, and improve the cohesion of new researchers with the ICAPS community. As part of the Doctoral Consortium, the Mentoring Program provides senior graduate students with an opportunity for in-depth advice from senior members of the field regarding careers and research skills. Each student is matched with an established researcher who assists the student with research and career management advice.

In 2021, the DC was held online via Zoom with participation from 17 Ph.D. students, matched with 17 different mentors. The 1-day program involves presentations from participants, panel discussion on “Paths to a Profession,” a quiz show, and talks by senior members of the planning and scheduling research community.

Invited Talks

- Ron Petrick
- Kartik Talamadupula

6.2 Workshops

6.2.1 Fourth ICAPS Workshop on Hierarchical Planning (HPlan)

The motivation for using hierarchical planning formalisms is manifold. It ranges from an explicit and pre-defined guidance of the plan generation process and the ability to represent complex problem solving and behavior patterns to the option of having different abstraction layers when communicating with a human user or when planning co-operatively. The best-known formalism in the field is Hierarchical Task Network (HTN) planning. In addition, there are several other hierarchical planning formalisms, e.g., hybrid planning (incorporating aspects from POCL planning), Hierarchical Goal Network (HGN) planning (incorporating a hierarchy on goals), or formalisms that combine task hierarchies with timeline planning (e.g. ANML). Hierarchies induce fundamental differences from classical planning, creating distinct computational properties and requiring separate algorithms from non-hierarchical planners. Many of these aspects of hierarchical planning are still unexplored. Thus, we encourage any contribution, independent of the underlying hierarchical planning formalism, and want to provide a forum for researchers to discuss the various aspects of hierarchical planning.

Invited Talk Hierarchical Online Reasoning for the Integration of Planning and Acting (Malik Ghallab)

Organizing Committee

- Pascal Bercher, pascal.bercher at anu.edu.au
- Jane Jean Kiam, jane.kiam at unibw.de
- Zhanhao Xiao, xiaozhh9 at mail.sysu.edu.cn
- Ron Alford, ralford at mitre.org

6.2.2 Heuristics and Search for Domain-independent Planning (HSDIP)

Heuristics and search algorithms are the two key components of heuristic search, one of the main approaches to many variations of domain-independent planning, including classical planning, temporal planning, planning under uncertainty and adversarial planning. This workshop seeks to understand the underlying principles of current heuristics and search methods, their limitations, ways for overcoming those limitations, as well as the synergy between heuristics and search.

Invited Talk AI Planning: Challenges and Opportunities (Shirin Sohrabi)

Organizing Committee

- Salomé Eriksson, University of Basel, Switzerland
- Patrick Ferber, University of Basel, Switzerland
- Daniel Fišer, Czech Technical University, Czech Republic, and Saarland University, Germany
- Daniel Gnad, Saarland University, Germany
- Florian Pommerening, University of Basel, Switzerland
- David Speck, University of Freiburg, Germany
- Álvaro Torralba, Aalborg University, Denmark

6.2.3 Fifth ICAPS Workshop on Integrated Planning, Acting, and Execution (IntEx)

The fifth edition of the workshop on Integrated Planning, Acting, and Execution (IntEx) aims: (1) to provide a forum for discussing the challenges of integrating online planning, acting, and execution, and (2) to assess the potential for holding an integrated execution competitions at ICAPS

Organizing Committee

- Sunandita Patra, University of Maryland, College Park, patras at umd.edu
- Mak Roberts, Naval Research Laboratory, mark.roberts at nrl.navy.mil
- Tiago Vaquero, Jet Propulsion Laboratory, vaquero at jpl.nasa.gov
- Wiktor Piotrowski, Palo Alto Research Center, wiktropi at parc.com

6.2.4 Knowledge Engineering for Planning and Scheduling (KEPS)

The workshop continue the tradition of several International Competitions on Knowledge Engineering for Planning and Scheduling (ICKEPS) and KEPS workshops. Rather than focusing only on software tools and domain encoding techniques –which are topics of ICKEPS– the workshop will cover all aspects of knowledge engineering for AI planning and scheduling.

Organizing Committee

- Lukas Chrpa, Czech Technical University
- Ron Petrick, Heriot-Watt University
- Mauro Vallati, University of Huddersfield
- Tiago Vaquero, NASA JPL

6.2.5 Bridging the Gap Between AI Planning and Reinforcement Learning (PRL)

This workshop aims to encourage discussion and collaboration between the researchers in the fields of AI planning and reinforcement learning. We aim to bridge the gap between the two communities, facilitate the discussion of differences and similarities in existing techniques, and encourage collaboration across the fields. We solicit interest from AI researchers that work in the intersection of planning and reinforcement learning, in particular, those that focus on intelligent decision making. As such, the joint workshop program is an excellent opportunity to gather a large and diverse group of interested researchers.

Invited Talk

- General Infomax Agents through World Models (Danijar Hafner)
- Learning to Plan and Planning to Learn (Aviv Tamar)
- Careful Pessimism (Emma Brunskill)
- The value equivalence principle for model-based reinforcement learning (André Barreto)
- Towards Causal Reinforcement Learning (Elias Bareinboim)

Organizing Committee

- Hector Palacios – chair
- Vicenç Gómez
- Anders Jonsson
- Alan Fern
- Andrey Kolobov
- Scott Sanner

6.2.6 Workshop on the International Planning Competition (WIPC)

Similar to the lineage of IPC workshops organised at ICAPS 2003, 2007, 2012, 2015, and 2019 this workshop aims to review the current status of the IPC, analyse the results of the last IPC (2020), and provide a venue for discussing aspects that will be helpful for preparing forthcoming competitions.

Organizing Committee

- Gregor Behnke (University of Freiburg)
- Daniel Höller (Saarland University)
- Pascal Bercher (The Australian National University)

6.2.7 Workshop of Explainable AI Planning (XAIP)

The world of Explainable AI is rapidly expanding in scope from classification tasks to more complex decision-making processes where automated algorithms play an outsized role. The International Workshop of Explainable AI Planning (XAIP) brings together the latest and best in the field of explainable planning and sequential decision-making.

Invited Talk

- Why Explain? Or Why didn't I get my observation? Explanation in Space Mission Scheduling for the Rosetta and M2020 Missions (Steve Chien)
- Interpretability with a Skeptical and User-Centric Mind (Been Kim)
- Explanations and Complementary for Optimal Human-AI Teams (Dan Weld)

Organizing Committee

- Benjamin Krarup, Kings College London
- Joerg Hoffmann, Saarland University
- Tathagata Chakraborti, IBM Research AI
- Sarath Sreedharan, Arizona State University
- Silvia Tulli, Técnico — Sorbonne University
- Rebecca Eifler, Saarland University
- Alan Lindsay, Heriot-Watt University
- Stylianos Vasileiou, Washington University

6.2.8 Workshop on Planning for Financial Services (FinPlan)

Planning is becoming a mature field in terms of base techniques and algorithms to solve goal-oriented tasks. It has been successfully applied to many domains including classical domains such as logistics or mars rovers, or more recently in oil and gas, as well as mining industry. However, very little work has been done in relation to financial institutions problems. Recently, some big financial corporations have started AI research labs and researchers at those teams have found there are plenty of open planning problems to be tackled by the planning community. For example, these include, trading markets, workflow learning, generation and execution, transactions flow understanding, risk management, fraud detection and customer journeys.

Organizing Committee

- Shirin Sohrabi (IBM Research)
- Sameena Shah (J.P. Morgan AI Research)
- Daniel Borrajo (J.P. Morgan AI Research, consultant)
- Daniele Magazzeni (J.P. Morgan AI Research)

6.2.9 Scheduling and Planning Applications woRKshop (SPARK)

This workshop series aims to provide a stable forum on relevant topics connected to application-focused research and the deployment of P&S systems. The immediate legacy began in 2007 with the ICAPS'07 Workshop on 'Moving Planning and Scheduling Systems into the Real World', and continued in 2008-2020 with successful yearly editions. 2021 is the 14th edition of SPARK.

Organizing Committee

- Riccardo De Benedictis, National Research Council of Italy, IT
- Simon Parkinson, University of Huddersfield, UK
- Marco Roveri, University of Trento, IT
- Sabine Storandt, Universität Konstanz, DE

6.2.10 Workshop on Planning and Robotics (PlanRob)

AI Planning & Scheduling (P&S) methods are key to enabling intelligent robots to perform autonomous, flexible, and interactive behaviors. Researchers in the P&S community have continued to develop approaches and produce planners, representations, as well as heuristics that robotics researchers can make use of. However, there remain numerous challenges complicating the uptake, use and successful integration of P&S technology in robotics, many of which have been addressed by robotics researchers with novel solutions. Strong collaboration and synergy between researchers in both communities is vital to the continued growth of the fields in a way that provide mutual benefits to the two communities. To foster this, the PlanRob workshop aims to provide a stable, long-term forum (having been held annually at ICAPS since 2013) where researchers from both the P&S and Robotics communities can openly discuss relevant issues, research and development progress, future directions and open challenges related to P&S when applied to Robotics. In addition to the usual paper submissions, the workshop's format naturally lends itself to preliminary results, position papers as well as to work focused on challenges in using and integrating planners in robotics systems.

Invited Talk Task Planning and Learning for General-Purpose Service Robots (Peter Stone)

Organizing Committee

- Iman Awaad, Hochschule Bonn-Rhein-Sieg University of Applied Sciences, iman.awaad at h-brs.de
- Alberto Finzi, Università di Napoli "Federico II", alberto.finzi at unina.it
- AndreA Orlandini, Institute of Cognitive Sciences and Technologies (ISTC-CNR), andrea.orlandini at istc.cnr.it

6.3 Tutorials

6.3.1 Hands-on Introduction to dcss-ai-wrapper: A Dungeon Crawl Stone Soup API for AI Planning

Description dcss-ai-wrapper aims to enable the Dungeon Crawl Stone Soup (DCSS) video game to be used as a new benchmark for AI research. While more traditional planning benchmarks exist (i.e. IPC domains) and more traditional RL benchmarks exist (i.e. open-ai gym), it is often difficult to compare an RL agent on IPC domains or a planner on RL domains. DCSS is a complex domain that has built-in support for both automated planning and RL, as well as other properties that make it worthwhile to study.

Dungeon Crawl Stone Soup is a single-player, free, and open-source rogue-like turn-based video game that consists of a procedurally generated 2-dimensional grid world. To win the game, a player must navigate their character through a series of levels to collect "The Orb of Zot" and then return to the starting location. Along the way, the player encounters a wide variety of monsters and items. Players equip and use items to make themselves stronger or consume them to aid in difficult situations. The DCSS environment is dynamic, stochastic, partially observable, and complex with the number of instantiated actions the player may take reaching into the hundreds.

dcss-ai-wrapper is the first AI-friendly API designed to enable planning-based agents to play Dungeon Crawl Stone Soup. In this tutorial we will guide participants through multiple live-coding exercises, providing them with the hands-on experience needed to apply their own custom planning algorithms and techniques to control an agent in DCSS for AI research.

Outline: The main objective of this tutorial is to provide a hands-on tutorial of the software. By the end of the tutorial, the attendees will be able to install the game / API wrapper, understand various API functionalities, be able to run sample Automated Planning and Reinforcement Learning agents, and understand the experimental metrics that can be used. We propose a 3 hour tutorial with the following schedule.

Organisers

- Dr. Dustin Dannenhauer, Parallax Advanced Research Corporation
- Dr. Amos-Binks, ARA
- Dr. Michael Floyd, Knexus Research Corporation
- Dr. Zohreh Dannenhauer, Knexus Research Corporation

6.3.2 Trustworthy AI: A Computational Perspective

Description The past few decades have witnessed the rise of artificial intelligence (AI) technology. However, recent studies show evidence that AI algorithms may not be trustworthy. For example, they could be vulnerable to slight perturbations of input data; they could undermine fairness by showing bias and stereotypes towards certain groups of people; and their decisions could be hard to explain due to their opaque model architectures. With the widespread use of AI applications in our daily life, whether an AI algorithm is trustworthy or not has become a problem of great concern to researchers, developers and users.

Recently, a great amount of research on trustworthy AI has emerged. In this tutorial, we aim to provide a comprehensive overview of the cutting-edge research progress on trustworthy AI from a computational perspective. Specifically, we focus on the six most important dimensions in realizing trustworthy AI: (i) Safety & Robustness, (ii) Non-discrimination & Fairness, (iii) Explainability, (iv) Privacy, (v) Accountability & Auditability, and (vi) Environmental Well-Being. We will introduce the latest technologies and real-world applications in each dimension according to a taxonomy, and discuss the accordant and conflicting interactions among various dimensions. Besides, we will discuss potential future research directions in this field.

We expect that researchers and practitioners can gain a broad overview and a deep insight of trustworthy AI from this tutorial, so as to advance the progress of this field.

Outline The tutorial is to be presented as a 3-hour online lecture.

- Introduction (10 mins)
- Dimension I: Safety & Robustness (30 mins),
- Dimension II: Non-discrimination & Fairness (30 mins),
- Dimension III: Explainability (30 mins),
- Dimension IV: Privacy (30 mins),
- Dimension V: Accountability & Auditability (15 mins),
- Dimension VI: Environmental Wellbeing (15 mins),
- Dimension Interactions and Future Directions (20 mins).

Organisers

- Haochen Liu, Xiaorui Liu, Yaxin Li, Jiliang Tang and Yiqi Wang, Michigan State University
- Wenqi Fan, Hong Kong Polytechnic University

Lessons learned In the past we have had more than just two tutorials at ICAPS. This year we started the recruiting process too late, and some candidates dropped out. We should identify a timeline based on past experience, and monitor it more closely.

6.4 System demonstrations

NOTE: Contributed by Tathagata Chakraborti (tchakra2@ibm.com), our System Demo Co-chair.

System Demos are not much fun in virtual mode. This also meant a bunch of fun ideas we had (for a live physical session) were impossible. Instead, the Demo Chair devolved into a compulsive bean counter to keep himself busy. Here is a summary.

6.4.1 Demo Numbers

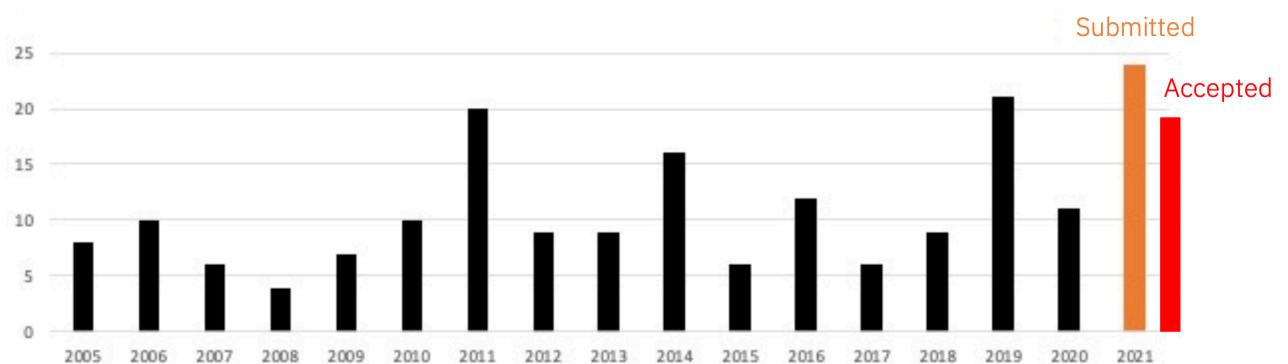


Figure 9: ICAPS demo numbers throughout the years

In terms of absolute numbers, we did quite well. We had a total of 24 submitted demos and 19 accepted (3rd highest in ICAPS history). See Figure 9 for a summary.

Things to standardize: On Minh's suggestion, we reached out to previous ICAPS and IJCAI, and the authors of papers accepted to ICAPS 2021 to solicit potential demos. This helped a lot and this outreach was probably also responsible for the previous peak demo count in 2011. We should make this standard practice.

6.4.2 Live Demo Setup

Demos were accessible from the webpage (for offline and public access) and the ICAPS Gather environment (for live access).

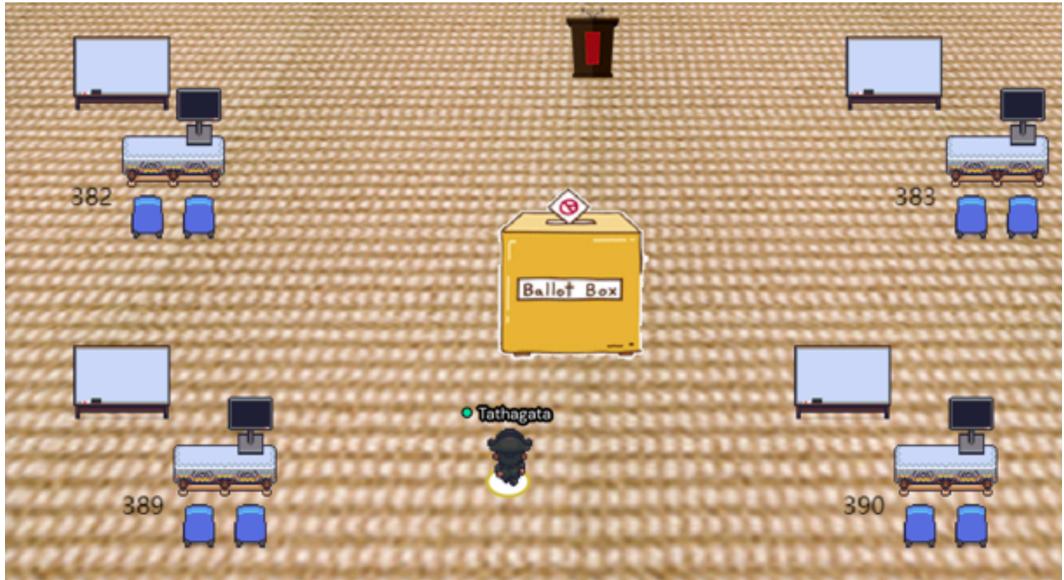


Figure 10: ICAPS'21 Demo setup in Gather

Demo Station on ICAPS Gather: We did almost the same setup as ICAPS 2020 for the live demo session. Each demo station had a poster, a video, and an optional landing page.

During the live session, each participant could share their screen with the attendees at their station.

A giant impossible-to-miss ballot box was placed in the middle of the Gather demo room to collect votes for the demo award.

Things to change: It was hard for people to know which demo was which without approaching the table, which some attendees found hard to navigate. We tried to put the demo names on the floor of the Gather room but that was too much clutter, and just putting the IDs themselves don't really help. Some presenters ended up adding their title to their Gather name and wandered around with giant text on their forehead.

Things to change: Half of the live demo session overlapped with the D/I session. This was a gross oversight on my [Tathagata Chakraborti - ed.] part and by the time I noticed it was too late to change. Since the demo session is community-wide there was only one demo session, and the demo participants are expected to stay at their stations, this was quite problematic for both the audience and the participants. We must do better to

avoid such conflicts this next time.

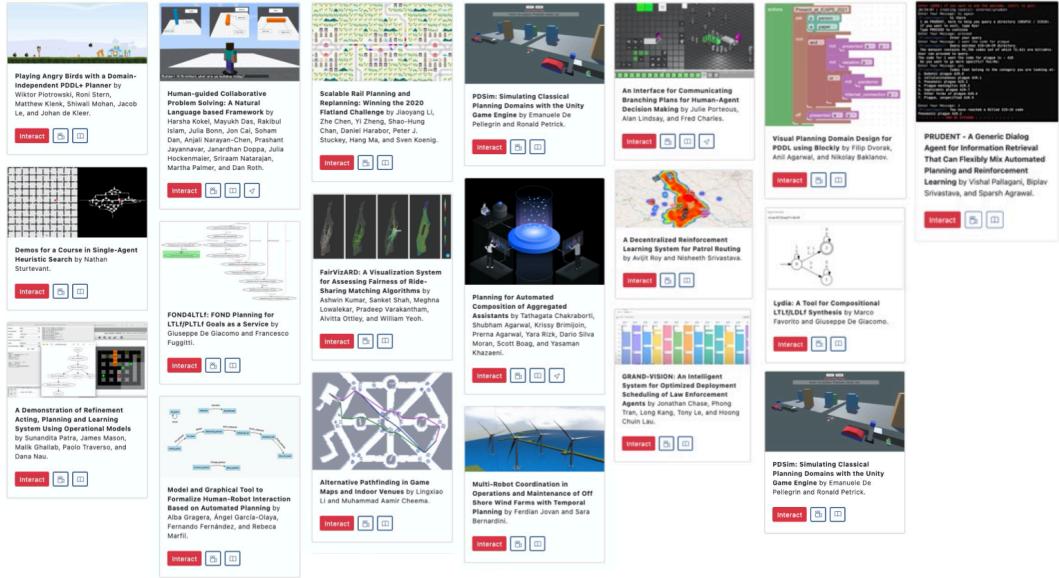


Figure 11: ICAPS’21 Demo setup on Website

Demo Cards on ICAPS Page: We maintained a colorful web presence (used in social media and communication channels) since demos – as working things people can engage with – can be used as a viable tool to attract a larger audience to ICAPS. To that end, we had cards for each demo with demo abstracts and video links that are publicly available, and an “interact” button to draw people into the ICAPS Gather environment.

We brought in a total of 94 people through the “interact” button to Gather, while a total of 661 people engaged with the demo cards in one form or another. We collected these numbers to get some sense of what kind of demos people are flocking to, and what modes of interaction people preferred to engage with. While the videos got a total of 339 views, the abstracts themselves also had a lot of traffic. I was originally wondering whether to scrap the abstracts but good that I didn’t. The detailed numbers are listed below in Table 6.4.2.

Name	Read	Watch	Interact	Website	Total
Scalable Rail Planning and Replanning: Winning the 2020 Flatland Challenge	23	45	8	0	76
Human-guided Collaborative Problem Solving: A Natural Language based Framework	16	16	6	16	54
A Planning Domains Plugin for Heuristic Visualization	15	25	9	0	49
Demos for a Course in Single-Agent Heuristic Search	14	25	5	0	44
Alternative Pathfinding in Game Maps and Indoor Venues	9	23	11	0	43
Multi-Robot Coordination in Operations and Maintenance of Offshore Wind Farms with Temporal Planning	12	22	6	0	40
Playing Angry Birds with a Domain-Independent PDDL+ Planner	13	20	4	0	37
FairVizARD: A Visualization System for Assessing Fairness of Ride-Sharing Matching Algorithms	11	15	7	0	33
PDSim: Simulating Classical Planning Domains with the Unity Game Engine	10	17	5	0	32
Visual Planning Domain Design for PDDL using Blockly	14	13	3	0	30
A Decentralized Reinforcement Learning System for Patrol Routing	8	16	5	0	29
FOND4LTLf: FOND Planning for LTLf/PLTLf Goals as a Service	11	14	3	0	28
GRAND-VISION: An Intelligent System for Optimized Deployment Scheduling of Law Enforcement Agents	8	17	3	0	28
Planning for Automated Composition of Aggregated Assistants	3	18	3	3	27
An Interface for Communicating Branching Plans for Human-Agent Decision Making	4	14	1	6	25
A Demonstration of Refinement Acting, Planning and Learning System Using Operational Models	9	12	2	0	23
Lydia: A Tool for Compositional LTLf/LDLf Synthesis	11	7	4	0	22
Model and Graphical Tool to Formalize Human-Robot Interaction Based on Automated Planning	8	11	2	0	21
PRUDENT - A Generic Dialog Agent for Information Retrieval That Can Flexibly Mix Automated Planning and Reinforcement Learning	4	9	7	0	20
TOTAL	203	339	94	25	661



Figure 12: ICAPS Demo Awards

The Demo Award: In keeping with ICAPS tradition, we did a People’s Choice Award determined through popular vote. This time we gave away Gold, Silver, and Bronze prizes (and a 100 USD cash prize), in the spirit of the 2021 Olympics going on at the same time. Congratulations to the winners!

This year we did a live vote counter to incentivize voting and audience engagement in the demo session. Unfortunately, we don’t have any numbers from the Gather environment, with regards to how many people visited the live session. In terms of voting, we go a total of 75 votes and a close finish.

Things to think about: I have always felt that the demo award is biased in favor of established members of the community / big labs and institutions who can vote for their friends, given the size and nature of our community. I tried to institute a “no conflict of interest (COI)” policy in the voting but this proved problematic since the size of COI sets for members in the community is often of the order of size of the community. In the end, I just went with a “cannot vote for self” policy which is too weak. I have no solution,

but I wish there was one.

On the other hand, I am very pleased to see that the 3 demos scoring highest on engagement were also the 3 award winners. So at least the current voting scheme (logged in / registered, with no vote for self) passes the legitimacy test, as opposed to previous times where publicly-accessible Google Docs were open to manipulation.

Wanna build your own system?

Check out these amazing planning softwares built by the ICAPS community to get started. ❤️

[Fast Downward](#) Planning System

[Tarski](#) An AI Planning Modeling Framework

[ROSPlan | ROS2](#) Planning and Robotics

[VAL](#) The Plan Validation System

[OPTIC | KCL Planners](#) with time and preferences

[PRP Planner](#) Non-deterministic planning

[Fast Forward](#) Family of satisficing planners

[IBM TOP-K Planners](#) Diverse and Top-Quality planning

[Pyperplan](#) A lightweight STRIPS planner in Python

[LAPKT](#) A lightweight automated planning toolkit

[Planutils](#) A linux-based planning environment

[Planning.Domains](#) Planning on the web

[VS Code | Sublime | Atom](#) PDDL Plugins

Don't see something here? Contribute to the Planning [GitHub](#), add to [Planning.Wiki](#), or send us an [email](#).

Automated Planning

PDDL tips and tricks!

Name	# Clicks
Tarski	10
IBM Top-K/Q	9
Fast Downward	9
Pyperplan	8
Planutils	8
Fast Forward	6
LAPKT	6
planning.domains	4
VAL	4
VS Code Plugin	4
OPTIC	3
ROSPLAN	3
Sublime Plugin	3
ROS2	2
PRP	2
Atom Plugin	1
KCL planners	1
TOTAL	83

Figure 13: List of Tools to help building planning software

Things to standardize: We displayed a list of wonderful ready-to-use tools that the ICAPS community has produced, to help folks looking to get started building planning software (see Figure 13). Something like this should be a permanent fixture on the ICAPS web pages going forward, both to incentivize making such tools available under permissive licenses and to help onboard new members of our community quickly.

Acknowledgements: Many thanks to Publicity Chair Sarath for implementing the backend logging system for all the statistics above, and to Virtual Conference Chair Zhanhao for painstakingly setting up the demo area in Gather during the conference.

Also, shout out to my Demo Co-Chair Hang for his help in sifting through thousands of IJCAI and AAAI papers for potential demos (and congratulations for winning it in the end as well!).

6.5 Industry Session

Late in the scheduling process, finding some extra slots in “prime-time” (the time that worked best across all time zones), we decided to add some invited talks from industry. We invited a number of speakers from various industrial organizations on short notice, but the results were quite satisfying.

6.5.1 Industrial Scheduling and Planning

Speaker: Yuan Mingxuan, Huawei

Description: Huawei is a leading global provider of information and communications technology (ICT) infrastructure and smart devices. We need to deliver hundreds of billions of dollar products across four key domains – telecom networks, IT, smart devices, and cloud services to more than 170 countries and regions on time every year. As one of the most complex supply chains in the world, a large number of scenarios rely on more efficient and intelligent scheduling & planning (S&P) algorithms. Besides supply chain, the computer system such as our storage production, circuit design and business solution supported by Huawei cloud also need to solve various S&P problems. Advanced S&P algorithms would greatly improve the efficiency of industrial systems and bring numerous economic values. In this talk, we would like to introduce some representative industrial scenarios we met as well as some of our technical works. It is expected to promote the joint research of academia and industry on advanced S&P techniques for typical practical problems.

6.5.2 Designing Goal-Oriented Conversational Agents using Automated Planning

Speaker: Tathagata Chakraborti, IBM Research

Description: Goal-oriented conversational agents, such as ones in customer support applications, require modeling of underlying business processes that end-to-end conversation models are ill-equipped to handle. In this talk, we will explore how automated planning techniques can be used in the conversational space to design large scale dialogue tree as well as scale up aggregated assistants to model sophisticated compositional behavior. We will also look at how these techniques provide out of the box explainability of agents both for the end-user as well as for the designer of these bots.

6.5.3 Automated Planning and Constraint Reasoning for High Throughput Laboratory Automation

Speaker: Dan Bryce, SIFT

Description: Planning large-scale experiments for high throughput robotic cloud laboratories presents significant challenges, including choices on what measurements to take, how to allocate laboratory resources, and how to describe experiments to support execution and reproducibility. We describe our work on the DARPA Synergistic Discovery and Design project to formalize and plan high throughput screening experiments in both automated closed-loop and investigator-driven open loop experimental campaigns. We highlight the benefits to scientists gained through removing several human touch-points that lead to metadata errors and the advantages of constraint reasoning to support experiment consistency. We also describe the opportunities and challenges for planning research to address practical concerns in bringing automation to the life sciences.

6.5.4 Environment Learning - Data-Driven Approaches for Real-World Decision Optimization

Speaker: Wei-Wei Tu, 4Paradigm

Description: Decision-making is the key to many real-world applications. Many decision optimization methods, e.g., reinforcement learning, have been developed for better decision making. In decision optimization tasks, we often need to interact with the real world or environment. However, accessing the real world may take risks or cost too much. For example, car accidents for automatic driving and production line adjustment in manufacturing plants for smart manufacturing are too dangerous or costly, and we can hardly afford them, and the subsequent decision making will also be badly affected. In many real-world decision

optimization paradigms, we often obtain virtual environments that can mimic the real world by manually building or learning from data to avoid unnecessary risks or costs. We call the resulting research area that targets building virtual environments using experiences(e.g., data, knowledge, Etc.) gathered from real decision environments - Environment Learning. In this talk, we will go through several virtual environment driven decision optimization paradigms and present data-driven environment learning approaches that have shown significant benefits for many real-world applications, e.g., Covid-19 pandemic prevention and control.

6.5.5 Planning for Controlling Business-to-business Applications

Speaker: Hector Palacios, Element AI

Description: Automated planning is a common problem in business environments and other complex interactions between humans and organizations. However, writing a planning model is a means to an end. The popularity of deep learning cast doubts about using model-based AI as practitioners might not want to write or maintain models. The current academic and industrial discussion focus on whether learning or model-based reasoning is a better path for AI problems like policy generation. In contrast, I will discuss how the act of describing a planning model can be seen as a form of declarative control. I will comment on how simple variations of well-studied models corresponds to such control in business contexts, where policies interact with humans, organization practices, software, and data-driven agents. Focused on AI business-to-business applications, I will comment on challenges and opportunities around such new settings and recent work compatible with this direction.

6.5.6 Autonomously responding to the environment with a distributed space system

Speaker: Nick Cramer · NASA

Description: Distributed Spacecraft Systems are a type of multi-spacecraft mission architecture that can provide improved resolution, coverage, and availability of existing missions and enable missions that would be previously infeasible using traditional approaches. Autonomy is a critical need for these systems. As these systems begin to scale and have more complicated interactions, their responses to observations or operational demands need to be handled autonomously of the ground. Distributed Spacecraft Autonomy (DSA) is a project developed by the National Aeronautics and Space Administration (NASA) that enables distributed spacecraft systems by developing three capabilities: scalable communication, distributed coordination and planning, and human-swarm interaction. DSA will demonstrate these capabilities in two contexts. The first context is a flight demonstration consisting of a software payload hosted on the Starling-1 small-spacecraft mission. This software payload will use the onboard GPS receiver to perform in-situ, swarm-level reconfiguration in response to observed features in the Topside Ionosphere. The second context is a scalability study, which shows how the technologies developed in the flight demonstration can scale to a large number of spacecraft (100). The scalability demonstration applies the tools developed for the flight mission to a hardware-in-the-loop simulation of the flight software payload.

6.6 Invited speakers

- Richard Sutton, University of Alberta
- Manuela Veloso, Head of JPMorgan AI Research and Herbert A. Simon University Professor Emeritus, Carnegie Mellon University
- Jieping Ye, University of Michigan & Beike. Vice President, and Chief Scientist, Beike Inc.; Professor, University of Michigan, Ann Arbor ; IEEE Fellow, and ACM Distinguished Scientist.
- Stefan Edelkamp, Czech Technical University in Prague

6.7 Competitions

NOTE: Contributed by Tathagata Chakraborti (tchakra2@ibm.com), our Competition Co-chair.

ICAPS 2021 saw its first ever (?) competitions track with real-world challenge problems from the industry. It was particularly difficult to pull this off during the pandemic year due to shifting timelines, and not everything planned eventually worked out. I have documented some takeaways here in case someone wants to follow up again next year (and hopefully augment with the existing standalone competitions that already run at ICAPS regularly). Results and recordings available at: <http://icaps21.icaps-conference.org/Competitions>.

How it started

AAAI 2020 NYC. On top of the Rockefeller Center, Minh asked: “Interested in competitions track at ICAPS?”



How it's going

7 Competitions engaged.
4 / 7 Competitions executed.
2000+ participants.
30,000+ USD in cash prizes.

Figure 14: ICAPS competition: Summary

6.7.1 Selection Criterion

Apart from the official call for participation, we used two specific criteria in hunting down potential competition entries at ICAPS.

Conference Partners One of the primary responsibilities of the host conference is to ensure that hosted competitions get enough engagement, commensurate with the level of effort and resources (time and money) that goes into organizing a competition. At the outset we were clear that ICAPS, by itself, is unlikely to pull in enough people to achieve that, being two orders of magnitude smaller than NeurIPS. With that outlook, while we did all we could to publicize the competitions in social media and in our mailing channels, we also made sure to team up with co-host in IJCAI, AMDL, NeurIPS, etc. to maximize participation. This worked out quite well.

Problems of interest to both ML and Planning communities The two primary objectives for hosting a competitions track are to:

- Expose the ICAPS audience to real-world real-data industry scale problems;
- Co-opt members like-minded communities and increase the reach of ICAPS. This also worked out quite well, with competition participation an order of magnitude higher than the ICAPS attendance.

There seemed to be considerable intrigue during ICAPS at classical algorithms winning against their RL counterparts. This was, of course, not an accident :P As should be evident from the list of potential competitions below, a particular reward function we were looking to optimize was to highlight the appropriate use of planning versus ML, since we were specifically targeting cross-community applications. I think we succeeded here in communicating where the state of the art in many of these problems is (positive or negative depending on who you are :D).

6.7.2 Pandemic and Timeline

Competitions typically run earlier than the actual conference timeline. For example, NeurIPS accepts competition proposals in February (months earlier than actual papers and workshop proposal), for a December finish. That is a 9-month timeline. This means setting up a presentable webpage, soliciting proposals, finalizing dates of the conference, and operationalizing publicity channels, almost a year in advance. We (ICAPS) are nowhere near setup for this. The pandemic, of course, made everything very difficult. But a physical conference also further shrinks the available time since winners need to be determined months in advance for travel / visa considerations. If someone is trying to do this again for ICAPS 2022, it's time to start right away.

A way to deal with the current uncertainty is to be very flexible with when competitions can start and finish (can be even after the conference). This flexibility also helps in co-hosting with other conferences e.g., co-host with a NeurIPS 2021 or NeurIPS 2022 competition with ICAPS in the middle. Winner talks can be punted to the next ICAPS in such cases.

6.7.3 Competitions Roster

This is a (I think) complete list of competitions we coordinated with. A few of them did not come to fruition due to the pandemic and an uncertain ICAPS timeline.

Name	Details	Status	Additional Comments
Huawei The Dynamic Pickup and Delivery Problem https://competition.huaweicloud.com/information/1000041411/introduction		SUCCESSFUL	ICAPS native.
4Paradigm Automatic Reinforcement Learning for Dynamic Job Shop Scheduling Problem https://www.4paradigm.com/content/details_85_2026.html		SUCCESSFUL	Co-located with IJCAI 2021.
The Flatland Challenge: Multi-Agent Reinforcement Learning on Trains https://www.aicrowd.com/challenges/flatland		SUCCESSFUL	Co-located with AMLD 2021 – rescheduled to NeurIPS 2021 (December).
L2RPN: Learning to Run a Power Network with Trust https://competitions.codalab.org/competitions/?q=icaps		SUCCESSFUL	
INTERPRET: INTERACTION-Dataset-Based PREdicTion Challenge http://challenge.interaction-dataset.com/prediction-challenge/intro	Plan prediction + autonomous driving on real data. This would have been great for the PAIR community. :-(FELL THROUGH	This is a strange one. We were good to go but then the organizing team went completely radio silent for months. We later found out that they had begun the challenge, put ICAPS on their website, but never told us. This was problematic for all sorts of reasons, and I decided to scrap our involvement as a result. It has now been moved to ICCV 2021.
REAL open-ended robotics learning https://eval.ai/web/challenges/challenge-page/1134/overview	Simulation-based learning. The base tasks need some expansion to make it planning friendly (can be done).	FELL THROUGH	Could not negotiate a suitable timeline and co-host with ICDL 2021.
OpenSim-RL: Reinforcement learning with musculoskeletal models in OpenSim http://osim-rl.stanford.edu/		UNSUCCESSFUL	
Reconnaissance Blind Chess https://rbc.jhuapl.edu/	Big miss!	FELL THROUGH	This will be fantastic to do – a NeurIPS versus ICAPS head-to-head on a planning task :P Eventually, we could not settle on a coordinated plan with the ICAPS date itself moving around. Moved to NeurIPS only. :(
CAUSEME https://causeme.uv.es/	Causal discovery	UNSUCCESSFUL	
AutoDL https://autodl.chalearn.org/	Planning for AutoAI use cases	UNSUCCESSFUL	We should try to tap into this in later iterations. An emerging field for planning applications.
Pommerman https://www.pommerman.com/	Simulation on Games. Sad to not get either of these.	UNSUCCESSFUL	
MineRL https://minerl.io/		UNSUCCESSFUL	
Diagnostic Questions Challenge https://competitions.codalab.org/competitions/25449		UNSUCCESSFUL	
Traffic4cast https://www.iarai.ac.at/traffic4cast/		UNSUCCESSFUL	
Duckietown https://www.duckietown.org/		UNSUCCESSFUL	Hard to do in a virtual setup.

Acknowledgements Many thanks to Conference Chairs Minh and Hankz for inviting me to co-chair the competitions track at ICAPS, to Hankz for helping coordinate with Huawei and 4Paradigm, and to Program Chair Michael for accommodating the competitions track in the conference program.

Big thanks to chairs of ICAPS 2018 Operations Research Track, Adrian and Pascal, as well for helping us connect to relevant communication channels to publicize this year’s competitions which had a significant OR lean to them; and to Publicity Chair Sarath for his help in reaching out on various communication channels.

Also, special thanks to Hugo Jair Escalante, who has been running the NeurIPS competition programs for 3 years, for his helpful suggestions and tips in getting us going at ICAPS.

7 Registration numbers

The total number of registrations was 513.

By country Compared to previous ICAPSes, there were a lot more participants from China this year. This year China had the second largest number of registrations, after the U.S.

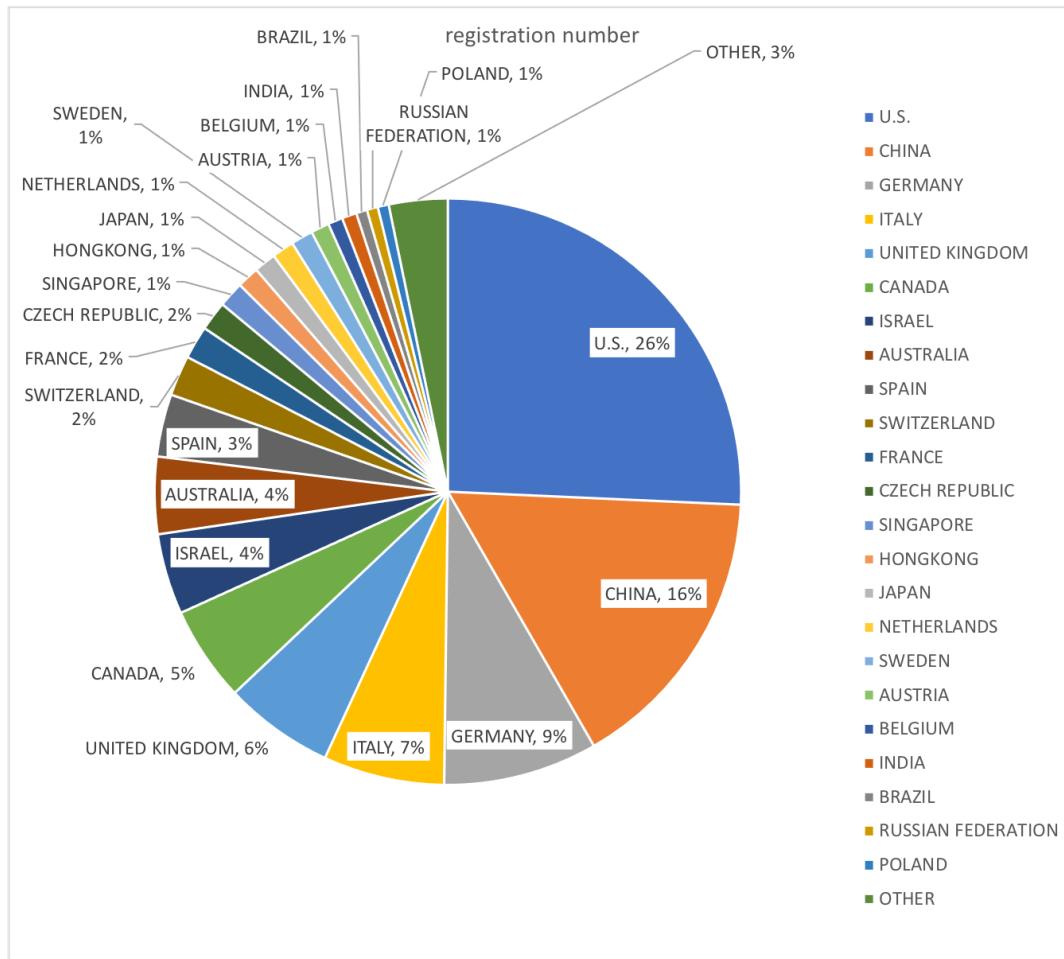


Figure 15: Statistics of Participants by Countries

By category Due to different time zones, the number of attendees is various with respect to different tracks according the report from the zoom. The highest number of attendees was 507 at the main conference. The details can be from Figures 16-19.

2022/1/6 上午12:18

Meeting Report - Zoom

Reports >

Reports (/account/report) Document (/zendesk/sso?return_to=https://support.zoom.us/hc/en-us/articles/201363213-Daily-and-Usage-Reports)
 > Usage Reports (<https://zoom.us/account/report>) > Meeting

Meeting Report (/account/report/regmeeting) **Report Queue (/account/report/meetingqueue)**

Report Type Registration Report
 Poll Report
 Survey Report

Search by time range ▾ From: 2021/08/01 To: 2021/08/31 Search
 Maximum report duration: 1 Month

Total: 50	< [] >	Scheduled Time	Start Time	Topic	Meeting ID	Attendees	Generate
□		2021/08/06 08:30:00 PM	2021/08/20 10:13:52 PM	ICAPS-21 XAIP	858 4659 6481	3	Generate
□		2021/08/12 12:30:00 PM	2021/08/13 11:53:57 AM	Main Conference	861 9882 3618	308	Generate
□		2021/08/12 12:30:00 PM	2021/08/13 01:23:17 AM	Main Conference	861 9882 3618	71	Generate
□			2021/08/12 07:23:45 PM	Michael Katz's Personal Meeting Room	835 432 3449	2	Generate
□		2021/08/12 06:30:00 PM	2021/08/12 06:40:38 PM	Hankz Zhuo's Zoom Meeting	882 9370 5316	3	Generate
□		2021/08/11 12:30:00 PM	2021/08/12 11:54:51 AM	Main Conference	861 9882 3618	219	Generate
□		2021/08/11 12:30:00 PM	2021/08/12 11:49:48 AM	Main Conference	861 9882 3618	2	Generate
□		2021/08/11 12:30:00 PM	2021/08/12 12:51:15 AM	Main Conference	861 9882 3618	113	Generate
□		2021/08/10 12:30:00 PM	2021/08/11 11:55:18 AM	Main Conference	861 9882 3618	285	Generate
□		2021/08/10 12:30:00 PM	2021/08/11 10:34:16 AM	Main Conference	861 9882 3618	2	Generate
□		2021/08/10 07:00:00 PM	2021/08/10 07:39:44 PM	Competitions	848 5411 7629	130	Generate
□		2021/08/09 12:30:00 PM	2021/08/10 12:02:55 PM	Main Conference	861 9882 3618	420	Generate
□		2021/08/10 07:00:00 PM	2021/08/10 07:33:15 AM	Competitions	848 5411 7629	2	Generate
□		2021/08/09 12:30:00 PM	2021/08/09 10:53:47 AM	Main Conference	861 9882 3618	507	Generate
□		2021/08/09 12:30:00 PM	2021/08/09 05:29:37 AM	Main Conference	861 9882 3618	2	Generate

<https://zoom.us/account/report/regmeeting?from=08/01/2021&to=08/31/2021&type=2>

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Figure 16: Statistics of Participants by categories from Zoom (Part I)

Reports



Reports (/account/report) Document (/zendesk/sso?return_to=https://support.zoom.us/hc/en-us/articles/201363213-Daily-and-Usage-Reports)
 > Usage Reports (<https://zoom.us/account/report>) > Meeting

Meeting Report (/account/report/regmeeting)

Report Queue (/account/report/meetingqueue)

Report Type Registration Report
 Poll Report
 Survey Report

Search by time range ▾ From: To:
Maximum report duration: 1 Month

Total: 50 < >

<input type="checkbox"/>	Scheduled Time	Start Time	Topic	Meeting ID	Attendees	Generate
<input type="checkbox"/>	2021/08/09 12:30:00 PM	2021/08/09 01:49:20 AM	Main Conference	861 9882 3618	6	Generate
<input type="checkbox"/>	2021/08/07 04:00:00 PM	2021/08/07 03:53:38 PM	volunteers meeting	867 9041 2604	20	Generate
<input type="checkbox"/>	2021/08/05 05:30:00 PM	2021/08/06 10:18:11 PM	ICAPS-21 KEPS-1	898 4844 2521	2	Generate
<input type="checkbox"/>	2021/08/05 09:30:00 PM	2021/08/06 09:22:34 PM	PRL 2021	838 0563 2807	103	Generate
<input type="checkbox"/>	2021/08/06 08:30:00 PM	2021/08/06 09:01:01 PM	ICAPS-21 XAIP	858 4659 6481	2	Generate
<input type="checkbox"/>	2021/08/06 08:30:00 PM	2021/08/06 08:26:54 PM	XAIP 2021	885 1909 8495	187	Generate
<input type="checkbox"/>	2021/08/06 08:30:00 PM	2021/08/06 08:19:26 PM	IntEx 2021	845 6367 1218	81	Generate
<input type="checkbox"/>	2021/08/05 05:30:00 PM	2021/08/06 05:31:38 PM	ICAPS-21 KEPS-1	898 4844 2521	88	Generate
<input type="checkbox"/>	2021/08/05 05:30:00 PM	2021/08/06 05:27:55 PM	ICAPS-21 KEPS-1	898 4844 2521	3	Generate
<input type="checkbox"/>	2021/08/06 08:30:00 PM	2021/08/06 03:47:41 PM	XAIP 2021	885 1909 8495	2	Generate
<input type="checkbox"/>	2021/08/09 12:30:00 PM	2021/08/06 03:44:19 AM	Main Conference	861 9882 3618	2	Generate
<input type="checkbox"/>	2021/08/05 09:30:00 PM	2021/08/05 09:19:20 PM	ICAPS-21 FinPlan	898 3259 8315	59	Generate
<input type="checkbox"/>	2021/08/05 09:30:00 PM	2021/08/05 07:18:16 PM	PRL 2021	838 0563 2807	227	Generate
<input type="checkbox"/>	2021/08/05 05:30:00 PM	2021/08/05 05:33:30 PM	ICAPS-21 KEPS-1	898 4844 2521	124	Generate
<input type="checkbox"/>	2021/08/04 05:30:00 PM	2021/08/05 05:03:06 PM	ICAPS-21 PlanRob-1	835 3937 9071	139	Generate

<https://zoom.us/account/report/regmeeting?p=2&from=08/01/2021&to=08/31/2021&type=2>

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Figure 17: Statistics of Participants by categories from Zoom (Part II)

Reports

Reports (/account/report) Document (/zendesk/sso?return_to=https://support.zoom.us/hc/en-us/articles/201363213-Daily-and-Usage-Reports)
 > Usage Reports (<https://zoom.us/account/report>) > Meeting

[Meeting Report \(/account/report/regmeeting\)](#) [Report Queue \(/account/report/meetingqueue\)](#)

Report Type Registration Report
 Poll Report
 Survey Report

Search by time range ▾ From: To:
Maximum report duration: 1 Month

Total: 50 < >

<input type="checkbox"/>	Scheduled Time	Start Time	Topic	Meeting ID	Attendees	<input type="button" value="Generate"/>
<input type="checkbox"/>	2021/08/05 05:30:00 PM	2021/08/05 04:35:51 PM	ICAPS-21 KEPS-1	898 4844 2521	2	<input type="button" value="Generate"/>
<input type="checkbox"/>	2021/08/05 09:30:00 PM	2021/08/05 02:12:22 AM	ICAPS-21 PRL-1	880 7281 2056	3	<input type="button" value="Generate"/>
<input type="checkbox"/>	2021/08/04 05:30:00 PM	2021/08/04 11:54:42 PM	ICAPS-21 SPARK	881 7035 7015	5	<input type="button" value="Generate"/>
<input type="checkbox"/>	2021/08/04 06:30:00 PM	2021/08/04 06:56:02 PM	HSDIP	834 0170 4292	212	<input type="button" value="Generate"/>
<input type="checkbox"/>	2021/08/04 05:30:00 PM	2021/08/04 05:32:08 PM	ICAPS-21 SPARK	881 7035 7015	67	<input type="button" value="Generate"/>
<input type="checkbox"/>	2021/08/04 05:30:00 PM	2021/08/04 05:00:55 PM	ICAPS-21 PlanRob-1	835 3937 9071	232	<input type="button" value="Generate"/>
<input type="checkbox"/>	2021/08/04 05:30:00 PM	2021/08/04 04:03:13 PM	ICAPS-21 PlanRob-1	835 3937 9071	5	<input type="button" value="Generate"/>
<input type="checkbox"/>	2021/08/04 02:30:00 PM	2021/08/04 02:31:58 PM	ICAPS-21 WIPC	864 7784 7323	32	<input type="button" value="Generate"/>
<input type="checkbox"/>	2021/08/06 08:30:00 PM	2021/08/04 01:30:47 AM	ICAPS-21 XAIP	858 4659 6481	2	<input type="button" value="Generate"/>
<input type="checkbox"/>	2021/08/03 06:30:00 PM	2021/08/03 06:51:12 PM	TutoriaI-Trustworthy-AI	862 2807 2958	75	<input type="button" value="Generate"/>
<input type="checkbox"/>	2021/08/03 06:30:00 PM	2021/08/03 06:35:42 PM	TutoriaI-dcss-AI-wrapper	899 2226 2543	53	<input type="button" value="Generate"/>
<input type="checkbox"/>	2021/08/02 07:00:00 PM	2021/08/03 03:52:06 PM	Doctoral Consortium in ICAPS-21	858 9787 7064	2	<input type="button" value="Generate"/>
<input type="checkbox"/>	2021/08/03 06:30:00 PM	2021/08/03 08:45:44 AM	TutoriaI-dcss-AI-wrapper	899 2226 2543	3	<input type="button" value="Generate"/>
<input type="checkbox"/>	2021/08/03 06:30:00 PM	2021/08/03 08:03:48 AM	TutoriaI-dcss-AI-wrapper	899 2226 2543	3	<input type="button" value="Generate"/>
<input type="checkbox"/>	2021/08/03 12:00:00 AM	2021/08/03 12:11:59 AM	Test 1	896 0059 1457	6	<input type="button" value="Generate"/>

[1/2](https://zoom.us/account/report/regmeeting?p=3&from=08/01/2021&to=08/31/2021&type=2)

Figure 18: Statistics of Participants by categories from Zoom (Part III)

Reports

Reports (/account/report) Document (/zendesk/sso?return_to=https://support.zoom.us/hc/en-us/articles/201363213-Daily-and-Usage-Reports)
 > Usage Reports (<https://zoom.us/account/report>) > Meeting

[Meeting Report \(/account/report/regmeeting\)](#) [Report Queue \(/account/report/meetingqueue\)](#)

Report Type Registration Report
 Poll Report
 Survey Report

Search by time range ▾ From: To:
Maximum report duration: 1 Month

Total: 50	< >					
<input type="checkbox"/>	Scheduled Time	Start Time	Topic	Meeting ID	Attendees	
<input type="checkbox"/>	2021/08/02 07:00:00 PM	2021/08/03 12:11:28 AM	Doctoral Consortium in ICAPS-21	858 9787 7064	68	Generate
<input type="checkbox"/>	2021/08/03 06:30:00 PM	2021/08/02 11:47:32 PM	Tutorial-dcss-AI-wrapper	899 2226 2543	6	Generate
<input type="checkbox"/>	2021/08/02 07:00:00 PM	2021/08/02 09:19:47 PM	Doctoral Consortium in ICAPS-21	858 9787 7064	86	Generate
<input type="checkbox"/>	2021/08/02 07:00:00 PM	2021/08/02 08:19:39 PM	Doctoral Consortium in ICAPS-21	858 9787 7064	2	Generate
<input type="checkbox"/>	2021/08/02 07:00:00 PM	2021/08/02 06:59:13 PM	Doctoral Consortium in ICAPS-21	858 9787 7064	5	Generate

Total: 50 [< >](#)

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Zoom Blog (https://blog.zoom.us/)	Meetings Client (https://zoom.us/download#client_4meeting)	1.888.799.5926 (tel:1.888.799.5926)	Test Zoom (https://zoom.us/test)	
Customers (https://explore.zoom.us/customer/all)	Zoom Rooms Client (https://zoom.us/download#room_client)	Contact Sales (https://explore.zoom.us/contactsales)	Account (https://zoom.us/account)	
Our Team (https://explore.zoom.us/team)	Browser Extension (https://zoom.us/download#chrome_ext)	Plans & Pricing (https://zoom.us/pricing)	Support Center (https://zendesk/sso?return_to=https://support.zoom.us/hc/en-us)	
Careers (https://explore.zoom.us/careers)	Outlook Plug-in (https://zoom.us/download#outlook_plugin)	Request a Demo (https://explore.zoom.us/livedemo)	Live Training (https://explore.zoom.us/livetraining)	
Integrations (https://explore.zoom.us/integrations)	Lync Plug-in (https://zoom.us/download#lync_plugin)	Webinars and Events (https://zoom.us/events)	Feedback (https://zoom.us/feed)	
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Investors (https://investors.zoom.us/)	Android App (https://zoom.us/download#mobile_app)		Accessibility (https://explore.zoom.us/accessibility)	
Press (https://zoom.us/press)	Zoom Virtual Backgrounds (https://explore.zoom.us/virtual-)		Privacy, Security, Legal Policies, and Modern Slavery Act Transparency Statement (https://trust/legal-compliance)	
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How to Videos (https://zoom.us/videos)				
Developer Platform (https://developers.zoom.us/)				
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	<small>Personal Information</small>	<small>Cookie 设置</small>		<small>Do Not Sell My</small>



<https://zoom.us/account/report/regmeeting?p=4&from=08/01/2021&to=08/31/2021&type=2>

1/1

Figure 19: Statistics of Participants by categories from Zoom (Part IV)

8 Budget

8.1 Income

8.1.1 Sponsorship

Sponsor	General	Special Purpose	Note
Huawei	\$10,000	\$10,000	Special purpose: Huawei competition
IBM	\$2,500		
4Paradigm	\$4,000	\$9,000	Special purpose: 4Paradigm competition
AIJ	\$9,688		
SIFT	\$2,500		
David Smith		\$3,000	Left-over from ICAPS'20. Support student registration.
Total	\$28,688	\$22,000	

8.1.2 Registrations

Category	Number	Refunded	Fee	Total
Student	181	74*	\$20	\$3,620
Researcher	187	13	\$50	\$8,700
Free	151	0	0	0
Publication Fee	77	7	\$150	\$10,500
Summary				\$22,820

- Registration refund rule: for any student or young Chinese researchers (this is supported by Huawei sponsorship) who: (1) asked for the refund; (2) attend at least 5hrs of ICAPS'21.
- Free registration is given to: conference committee members, paper award winner, workshop organizers, tutorial givers, invited speakers, sponsors (exact number depends on the sponsorship level).
- Free publication: given to award-winning papers published at ICAPS'21.
- The student registration refund for 74 students (\$1,480) is still counted here as income since we will count them again as expense for the “special purpose” sponsorship by David Smith.

8.2 Expenses

Item	Cost
<i>AAAI Publication Fee</i>	(\$12,281)
Proceedings production	\$5,964
Cover and Website Review	\$700
Proceeding Cover	\$629.48
ICAPS Conference Consulting	\$1,925
ICAPS Conf. Conversion to OJS	\$3,062
<i>Tools</i>	(\$13,665)
Gather	\$22
Zoom	\$200
EasyChair	\$1,066
Slideslive	\$8,496
Slideslive - post-conference video processing	\$3,881
AWS Server	\$541
<i>Awards</i>	(\$2,500)
Best Paper	\$200
Best Student Paper	\$200
Best Undergraduate Student Paper	\$100
Honorable Mention - Best Paper (x2)	\$200
Honorable Mention - Best Student Paper (x2)	\$200
Best System Demo (x3)	\$300
Best Dissertation	\$500
Best Dissertation - Runner-up	\$250
Influential Paper	\$500
DC Quiz Winner	\$50
<i>Miscellaneous</i>	(\$21,649)
T-Shirt	\$14,105
T-Shirt Shipping Fee	\$5,051
Proceeding Cover License Fee	\$95
PayPal Transaction Fee	\$1,005
Bank Fee	\$117
Gift to Website & Online platform team	\$1,276
<i>Special Purpose</i>	(\$20,480)
Huawei Competition	\$10,000
4Paradigm Competition	\$9,000
Student Registration Refund (by David Smith)	\$1,480
Total - General	\$50,095
Total - Special Purpose	\$20,480

8.3 Balance

	General Purpose	Special Purpose
Total Revenue	\$51,508	\$22,000
Total Cost	-\$50,095	-\$20,480
Summary	\$1,413	\$1,520
Balance	\$2,933	

NOTE: \$1,480 refunded registration fee for 74 students was counted as “Special Purpose” expense (since it’s supported by David Smith’s sponsorship) and income.

9 List of participants

First name	Last name	Email	Pronoun	Institution	Country/Region	Is student
Sarith	Sreedharan	ssreedh3@asu.edu	he/him	ASU	UNITED STATES	1
Dana	Nau	nau@umd.edu	he/him	University of Maryland	UNITED STATES	0
Mikhail	Soutchanski	mes@cs.ryerson.ca	he/him	Ryerson University (Toronto,Canada)	CANADA	0
weixin	wu	2731472384@qq.com	he/him	xplanlab	CHINA	-
David	Smith	david.smith@psresearch.xyz	he/him	PS Research	U.S.	0
Tianyi	Gu	gu@cs.unh.edu	he/him	University of New Hampshire	U.S.	1
Biplav	Srivastava	biplav.srivastava@gmail.com	he/him	University of South Carolina	UNITED STATES	0
Mark	Feblowitz	mfeb@us.ibm.com	-	IBM Research	UNITED STATES	0
Pulkit	Verma	verma.pulkit@asu.edu	he/him	Arizona State University	UNITED STATES	1
Patrick	Ferber	patrick.ferber@unibas.ch	he/him	University of Basel/Saarland University	SWITZERLAND	1
Hankz Hankui J.	Zhuo	zhuohank@mail.sysu.edu.cn	he/him	Sun Yat-Sen University	CHINA	1
Benton		bentonj@gmail.com	he/him	NASA	UNITED STATES	0
Yuyong	Hu	867115311@qq.com	he/him	SYSU	CHINA	0
Gabriele	R?ger	gabriele.roeger@unibas.ch	she/her	University of Basel	SWITZERLAND	0
Stefan	Edelkamp	stefan.edelkamp@gmail.com	he/him	CTU Prague	CZECH REPUBLIC	0
Timo P.	Gros	timopetros@es.uni-saarland.de	he/him	Saarland University	GERMANY	0
Luigi	Palmieri	Luigi.Palmieri@de.bosch.com	he/him	Bosch Research	GERMANY	0
Thorsten	KI?ner	kloessner@cs.uni-saarland.de	he/him	Saarland University	GERMANY	0
Augusto B.	Corr??a	augusto.blaascorrea@unibas.ch	he/him	University of Basel	SWITZERLAND	1
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Marcel	Steinmetz	steinmetz@cs.uni-saarland.de	he/him	Saarland University	GERMANY	1
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Yuening	Zhang	zhangyn@mit.edu	she/her	MIT	U.S.	1
Shirin	Sohrabi	ssohrab@us.ibm.com	she/her	IBM research	UNITED STATES	0
Paolo	Forte	pao.lo.forte@oru.se	he/him	?rebo University	SWEDEN	1
Marcos	Roveri	marco.roveri@unitn.it	he/him	University of Trento	ITALY	0
Leonard	Bruno	leonardb@kth.se	he/him	KTH Royal Institute of Technology	SWEDEN	1
Thomas	Keller	tho.keller@unibas.ch	he/him	University of Basel	GERMANY	-
David	Speck	speckd@informatik.uni-freiburg.de	he/him	University of Freiburg	GERMANY	0
Tytus	Pikies	tytpikie@pg.edu.pl	he/him	Gda?sk University of Technology	POLAND	0
Hector	Geffner	hector.geffner@upf.edu	he/him	ICREA and Universitat Pompeu Fabra	SPAIN	-
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Sarah	Keren	sarah.e.keren@gmail.com	she/her	Technion - Israel Institute of Technology	ISRAEL	-
Zhanwen	Zhou	zhouzhw9@mail.sysu.edu.cn	he/him	SYSU	CHINA	-
Tathagata	Chakraborti	tchakra2@ibm.com	he/him	IBM Research	UNITED STATES	0
Robert	Goldman	RPGOLDMAN@SIFT.NET	he/him	SIFT, LLC	U.S.	-
Kartik	Talamadupula	krtalamad@us.ibm.com	he/him	IBM Research	UNITED STATES	0
Hang	Ma	hangma@sfu.ca	he/him	Simon Fraser University	CANADA	0
Clemens	B?chner	clemens.buechner@unibas.ch	he/him	University of Basel	SWITZERLAND	-
Dor	Atzman	dorat@post.bgu.ac.il	he/him	Ben-Gurion University	ISRAEL	1
Martim	Brandoa	martim.brandoa@kcl.ac.uk	he/him	King's College London	UNITED KINGDOM	0
Balaraman	Ravindran	ravi@cse.iitm.ac.in	he/him	IIT Madras	INDIA	0
Elena	Umi?l	umili@diag.uniroma1.it	she/her	Sapienza University of Rome	ITALY	1
Sven	Koenig	skoenig@usc.edu	-	USC	UNITED STATES	0
Maximilian	Fickert	fickert@cs.uni-saarland.de	he/him	Saarland University	GERMANY	1
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Mark	Cavolowsky	markcav@umd.edu	he/him	University of Maryland	U.S.	1
Matan	Sudry	Matansudry@campus.technion.ac.il	he/him	Technion	ISRAEL	1
Felipe	Meneguzzi	felipe.meneguzzi@gmail.com	he/him	PUCRS	BRAZIL	0
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Ella	Morgan	21esm2@queensu.ca	she/her	21esm2@queensu.ca	CANADA	1
Ron	Stern	roni.stern@Gmail.com	he/him	Palo Alto Research Center	ISRAEL	0
Sofia	Lemons	sofia.lemons@earlham.edu	they/them	Earlham College	UNITED STATES	0
Raj	Korpan	rkorpan@gradcenter.euny.edu	he/him	The Graduate Center, City University of New York	UNITED STATES	1
Ron	Petrick	R.Petrick@hw.ac.uk	he/him	Heriot-Watt University	UNITED KINGDOM	0
Simon	Parkinson	s.parkinson@hud.ac.uk	-	University of Huddersfield	UNITED KINGDOM	0
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Mauro	Vallati	m.vallati@hud.ac.uk	he/him	University of Huddersfield	UNITED KINGDOM	0
Zhaoxing	Bu	zbu@cs.ucla.edu	he/him	UCLA	UNITED STATES	1
Jane Jean	Kiam	jane.kiam@unibw.de	she/her	Bundeswehr University Munich	GERMANY	0
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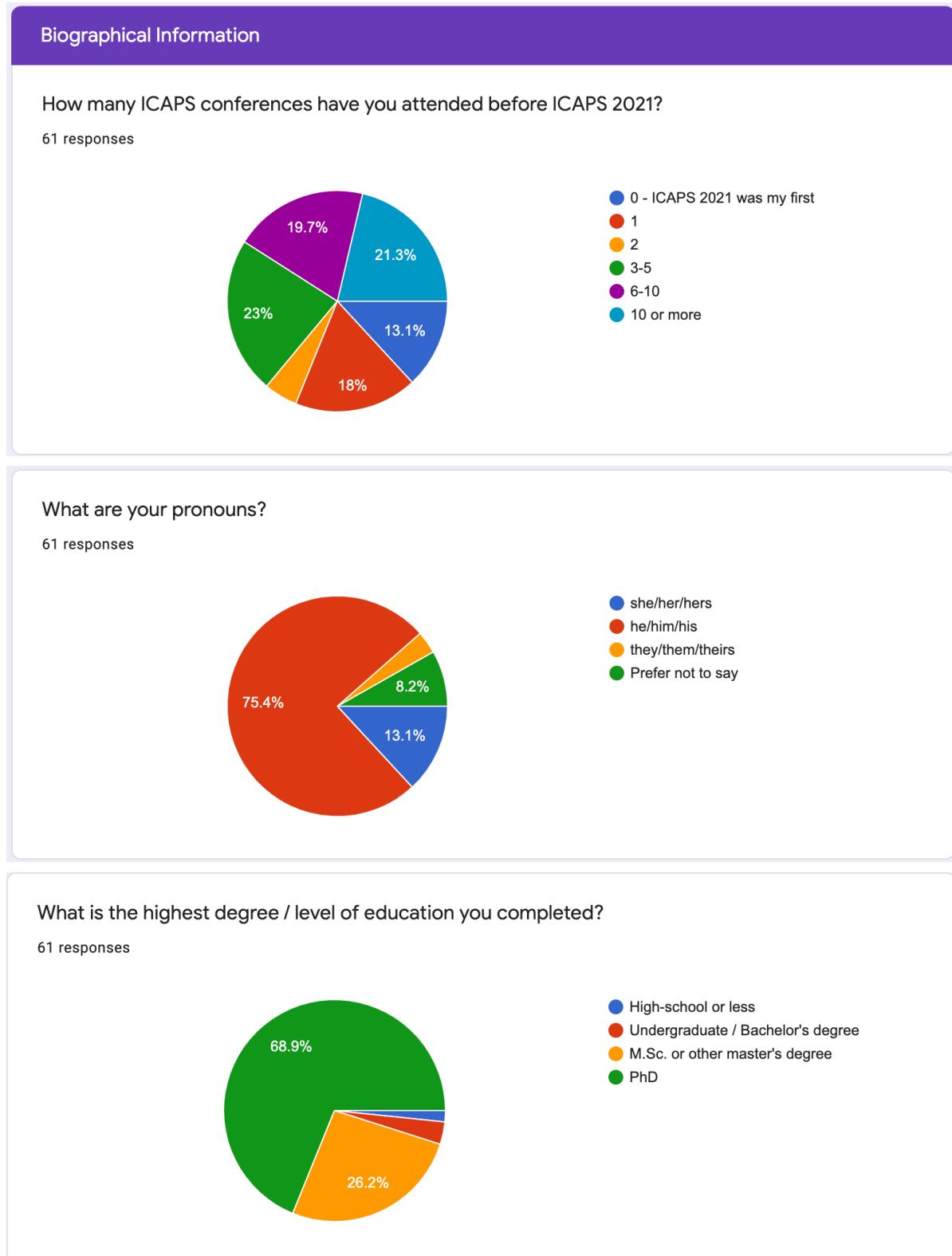
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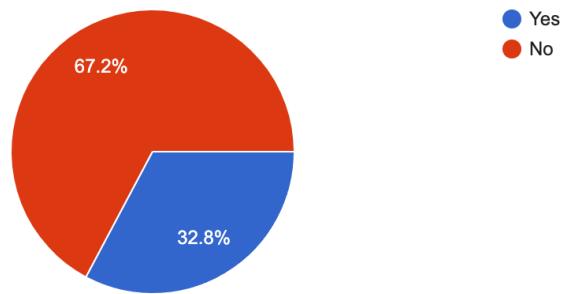
10 Post-Conference Survey

10.1 Biographical Information



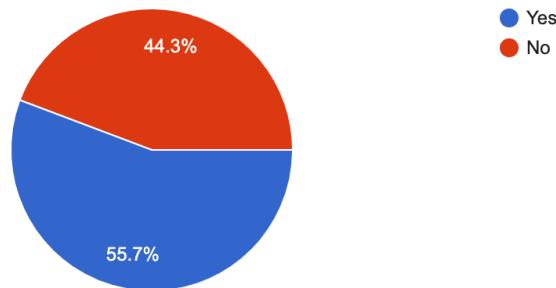
Are you currently a student?

61 responses



Did you present a paper at ICAPS 2021?

61 responses

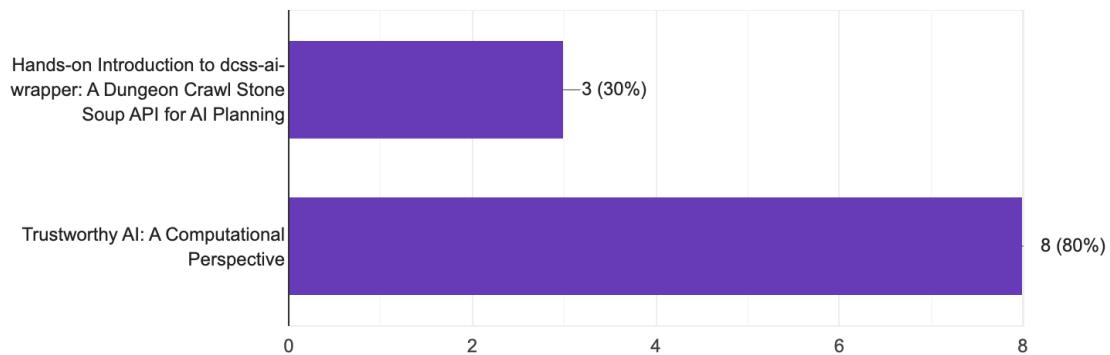


10.2 Attendance

Attendance

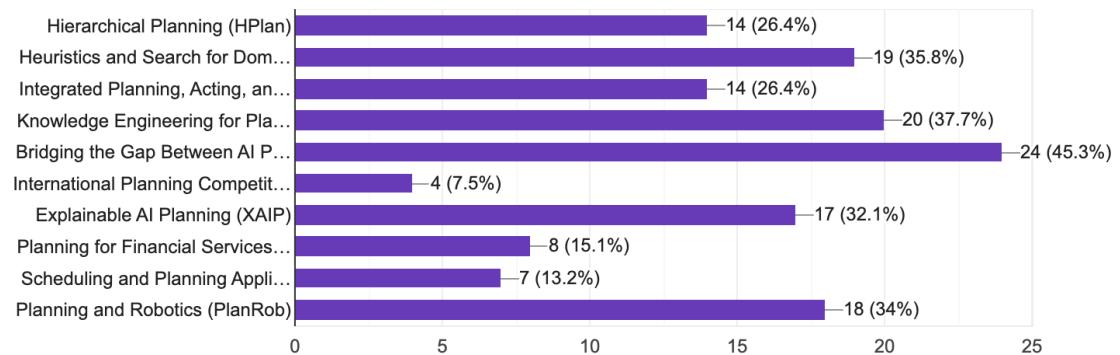
Which tutorials (if any) did you participate in?

10 responses



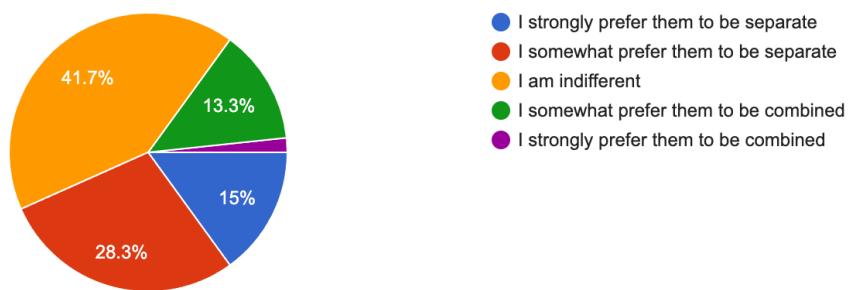
Which workshops (if any) did you participate in?

53 responses



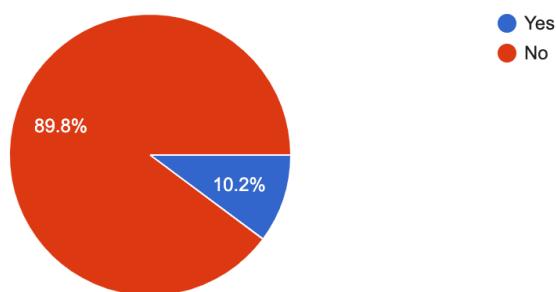
Do you prefer tutorials and workshops on the same topic to be separate events or combined events?

60 responses



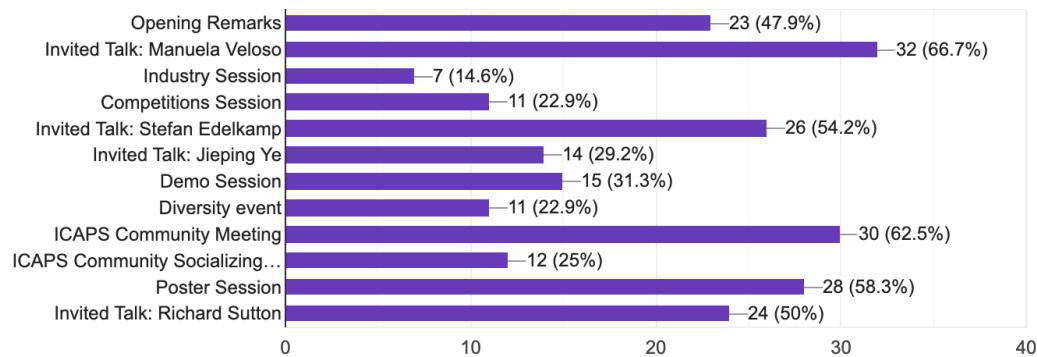
Did you participate in the ICAPS 2021 Doctoral Consortium?

59 responses



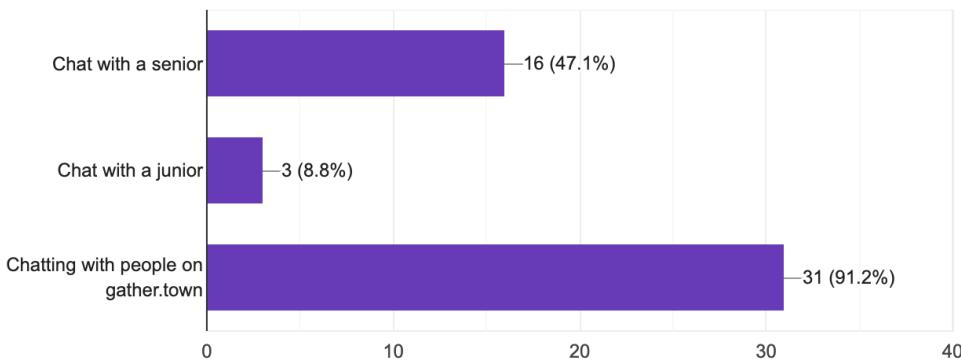
Which "prime time" events (if any) did you participate in?

48 responses



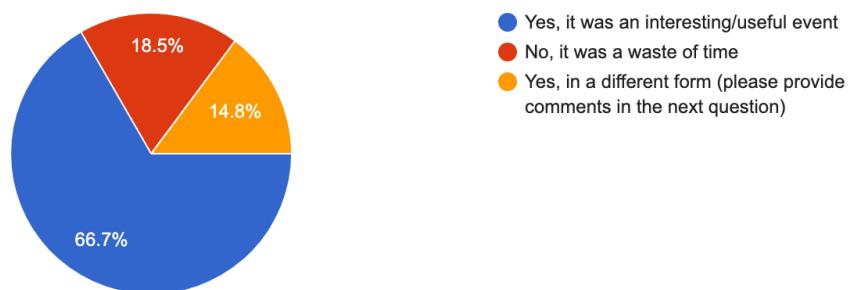
Which social events did you participate in?

34 responses



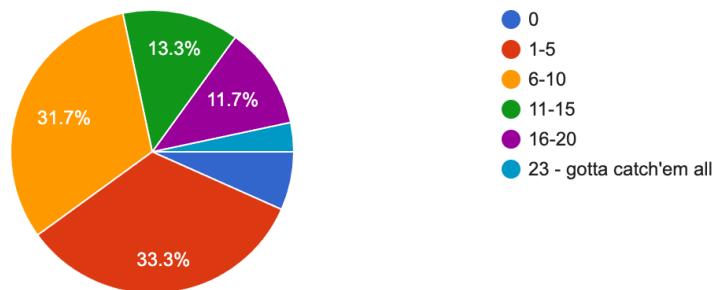
Chat with a junior was a new event introduced this year. Do you think we should continue having it next years?

27 responses



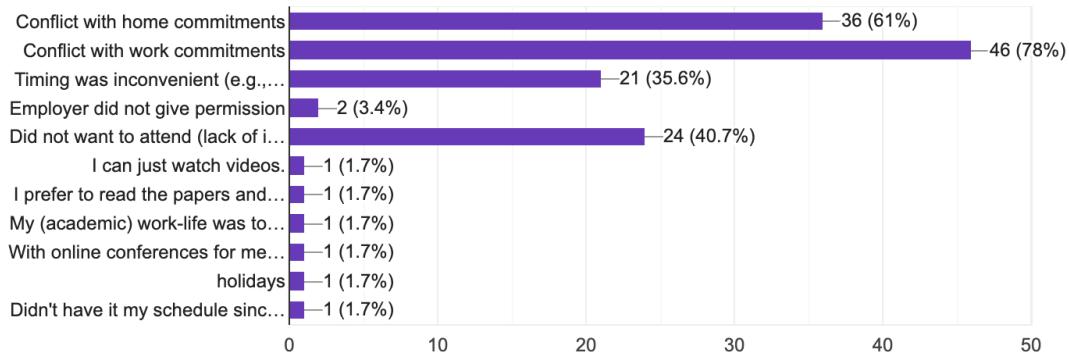
The ICAPS 2021 main conference program had 87 paper presentations in 23 sessions (each given twice). How many sessions (roughly) did you attend?

60 responses



If there were any sessions you did not attend, what were the reasons (it's possible to check several)?

59 responses

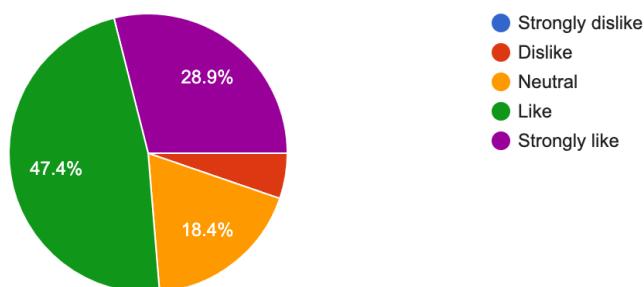


10.3 Online Experience

Online Experience

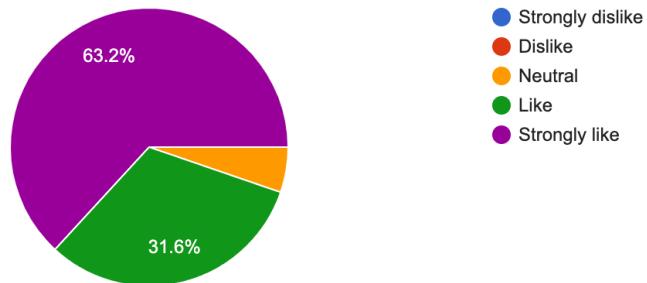
What did you think of having pre-recorded talks?

38 responses



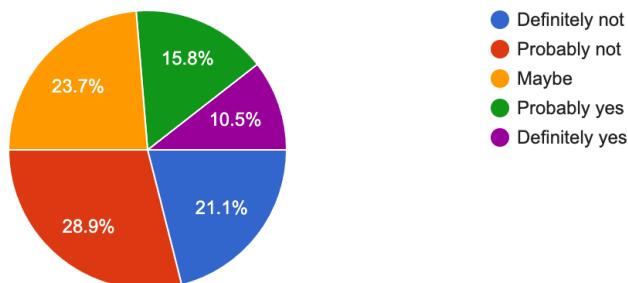
What did you think of having live Q&A?

38 responses



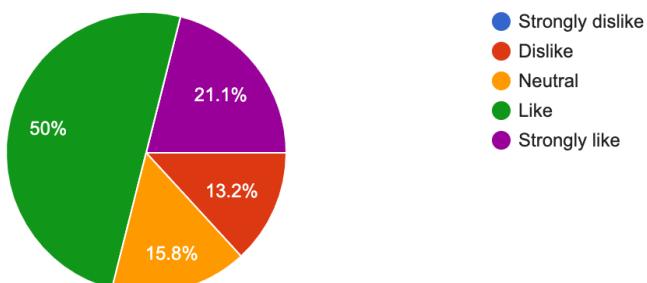
Do you think the Q&A after every talk should be recorded?

38 responses



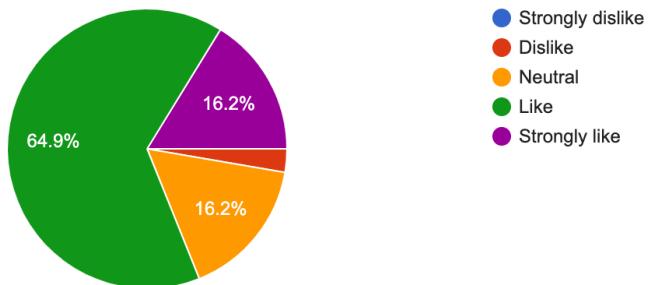
What did you think of repeating each session twice, to cover different time zones?

38 responses



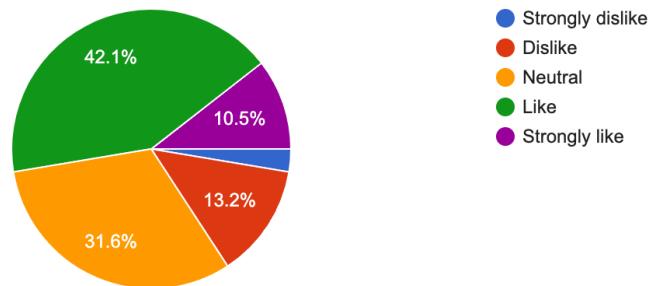
What did you think of having a single "prime time" slot for invited talks and community events?

37 responses



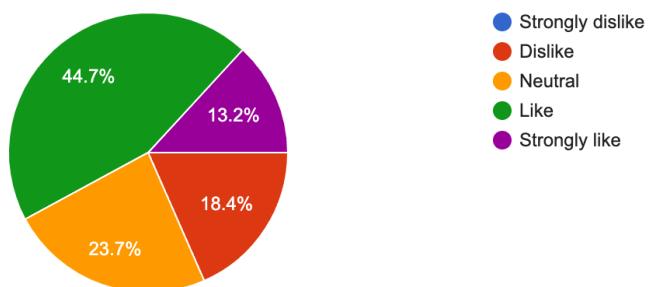
What did you think of having 5 days for the main conference instead of the usual 3 days when in-person or 4 days as last year?

38 responses



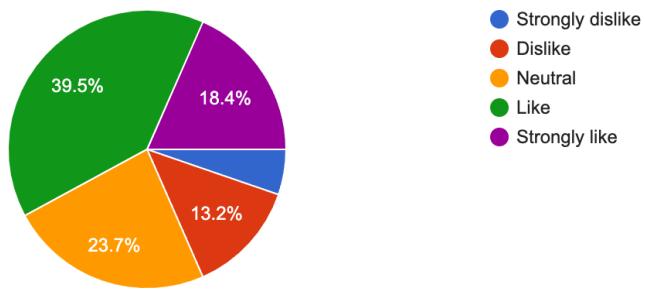
What did you think of having a single track instead of the usual dual track schedule?

38 responses



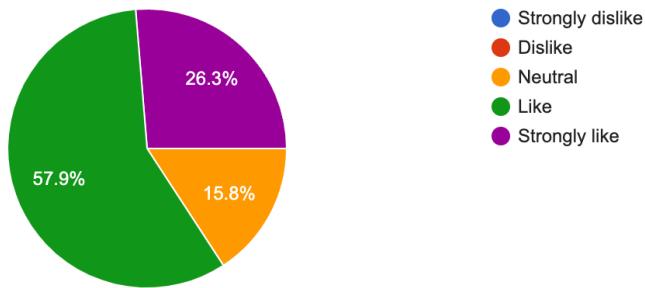
What did you think of the gather.town platform?

38 responses



What did you think of using Zoom for the sessions?

38 responses



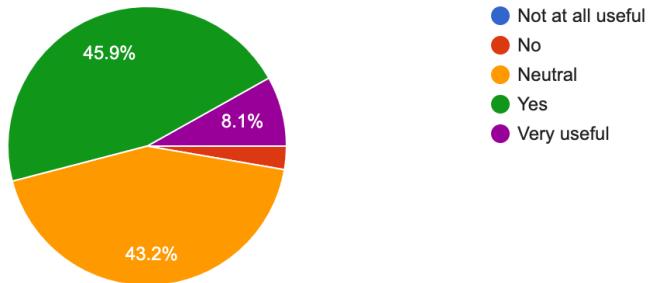
What did you think of the live-streaming sessions with Slideslive?

37 responses



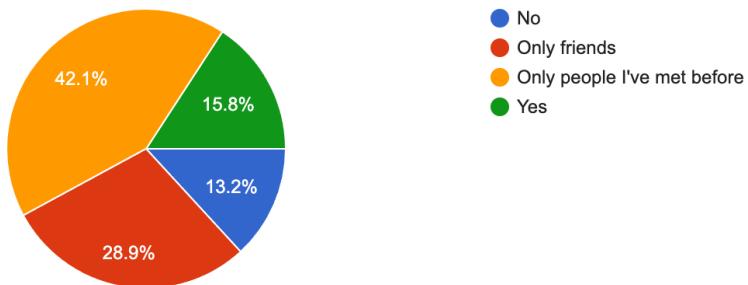
Did you find it useful to have the pre-recorded Slideslive videos online on the ICAPS-2021 website within 24 hours after the sessions ended?

37 responses



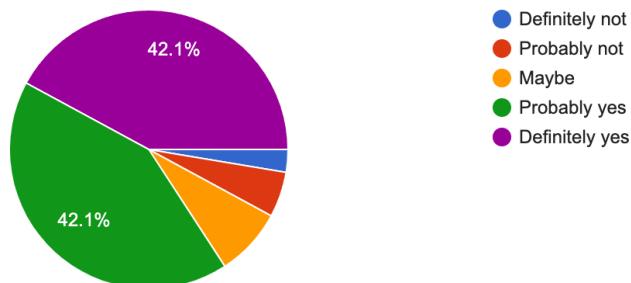
Were you comfortable approaching people on gather.town and talking to them?

38 responses



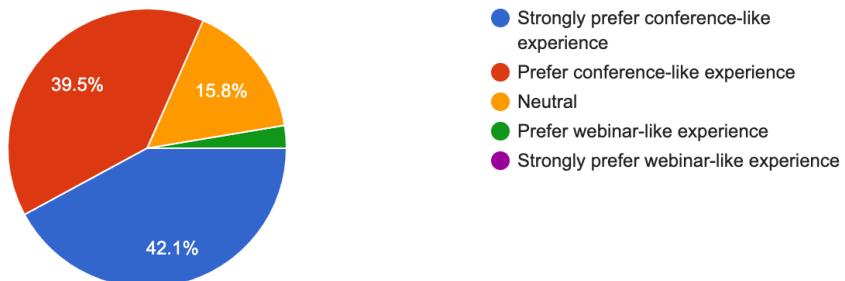
Were you comfortable with paying small registration fee, in contrast to free ICAPS 2020?

38 responses



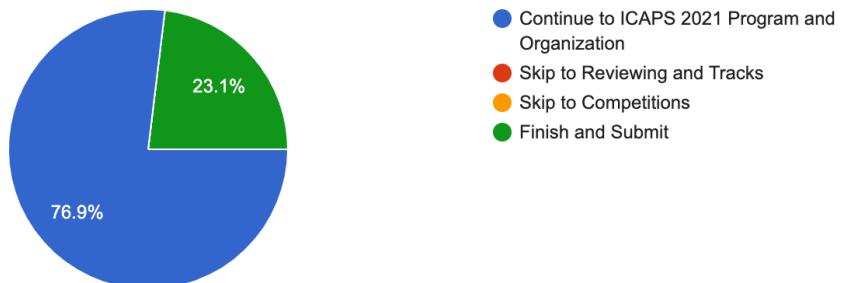
A number of our decisions were aimed at trying to replicate a "conference-like" experience with free-form questions from attendees, rather than the "webinar-like" experience, with questions collected and then presented by a moderator. How do you feel about these two options?

38 responses



Would you be willing to answer some more questions?

39 responses

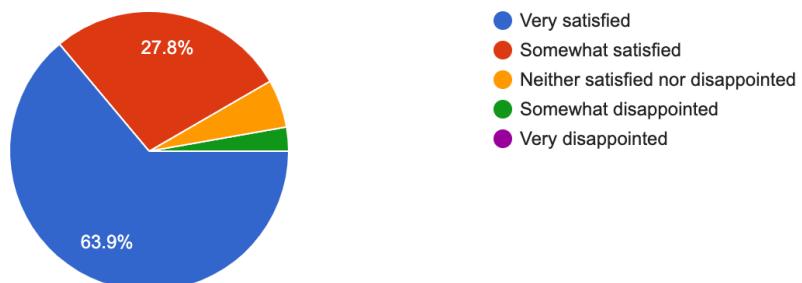


10.4 ICAPS 2021 Program and Organization

ICAPS 2021 Program and Organization

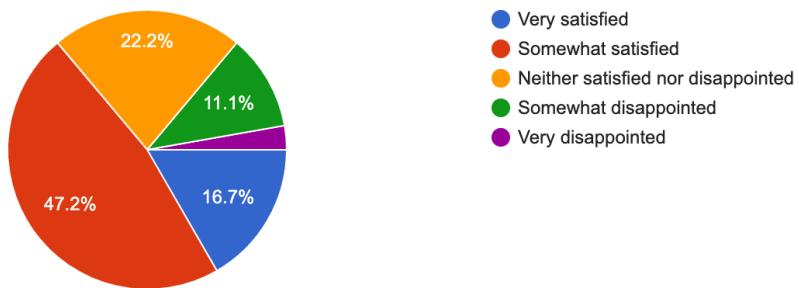
How satisfied are you with the overall scientific value of the ICAPS 2021 conference?

36 responses



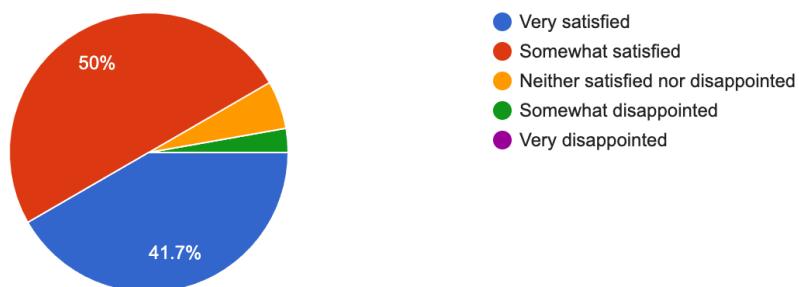
How satisfied are you with the overall social value of the ICAPS 2021 conference?

36 responses



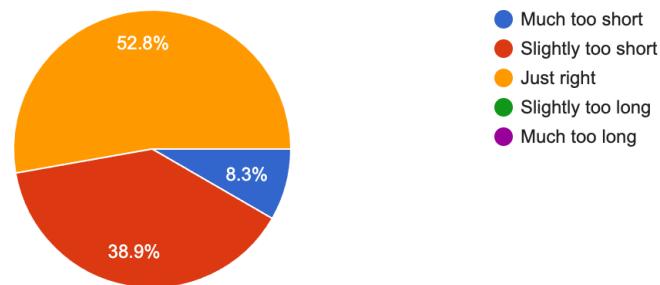
How satisfied are you with the overall organization of the ICAPS 2021 conference?

36 responses



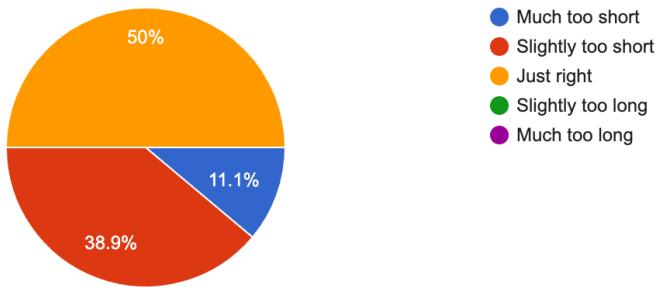
How satisfied are you with the length of the talks (10 minutes)?

36 responses



How satisfied are you with the length of the Q&A (3 minutes)?

36 responses

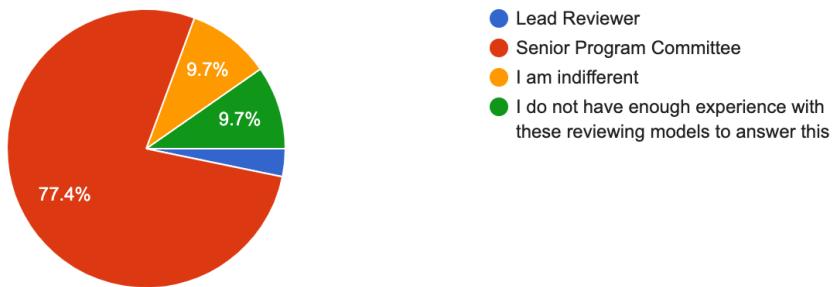


10.5 Reviewing and Tracks

Reviewing and Tracks

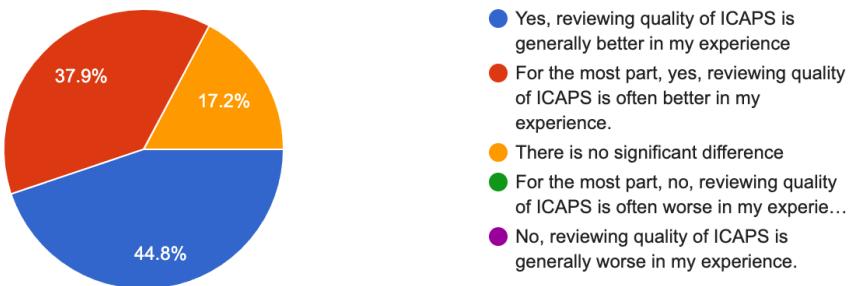
Some iterations of ICAPS have used a lead reviewer model, where one reviewer acts as a moderator and writes a final meta-review. Others (including ICAPS 2021) have used a Senior Program Committee model, where a senior researcher moderates the reviews and discussion, then finally writes a meta-review. Which model do you prefer?

31 responses



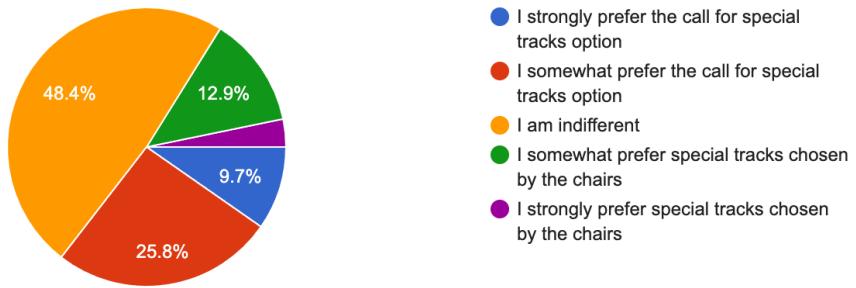
In comparison to other major conferences such as AAAI, IJCAI, and ECAI, are you satisfied with the quality of the overall reviewing process at ICAPS?

29 responses



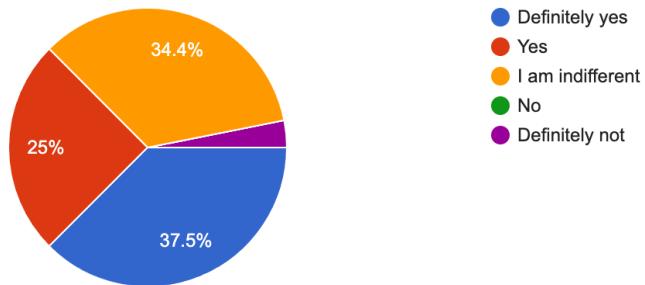
Do you prefer to have a call for special tracks over special tracks that are chosen by the chairs?

31 responses



Since 2013, ICAPS has had a journal presentation track. Do you think ICAPS 2022 should keep the journal presentation track?

32 responses

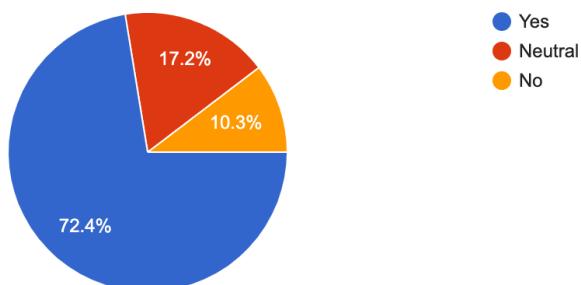


10.6 Competitions

Competitions

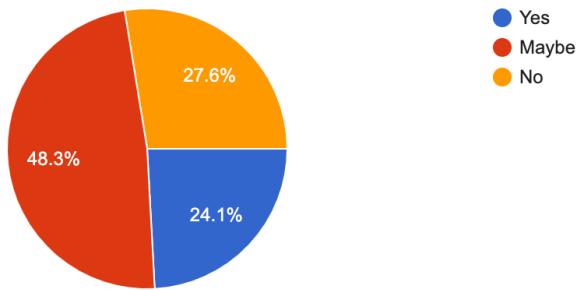
ICAPS 2021 featured a number of competitions around real-world problems, co-hosted with other conferences (NeurIPS, IJCAI, etc). Would you like to see this type of competition again in the near future (ICAPS-22, ICAPS-23)

29 responses



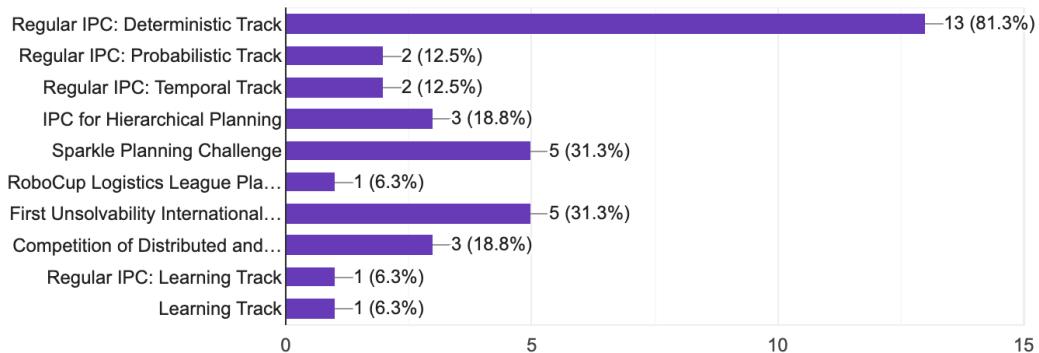
Would you consider participating in this type of competition if it is featured in an ICAPS in the near future (ICAPS-22, ICAPS-23)

29 responses



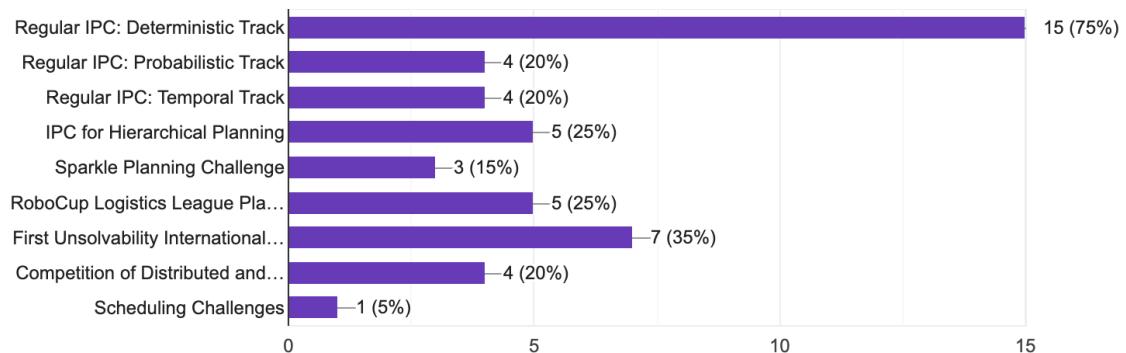
ICAPS has organized many competitions in the past two decades (<https://www.icaps-conference.org/competitions/>). Which competitions have you participated in in the past?

16 responses



Which of these competitions would you consider participating in the near future (ICAPS-22, ICAPS-23)?

20 responses



Which of these competitions would you consider organizing in the near future (ICAPS-22, ICAPS-23)?

6 responses

