Thomy Phan

Curriculum Vitae

Contact Information

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Research Interests

Multi-Agent Systems, Reinforcement Learning, Optimization

Education

2018 – 2023 **Ph.D. in Computer Science**, *LMU Munich*, Germany
- Thesis: *"Emergence and Resilience in Multi-Agent Reinforcement Learning"*
  - Thesis committee: Claudia Linnhoff-Popien, Sven Koenig, Long Tran-Thanh
  - Based on work published at AAMAS, AAAI, IJCAI, NeurIPS, and ICML

2015 – 2017 **M.Sc. in Computer Science**, *LMU Munich*, Germany
- Focus on artificial intelligence, data science, and autonomous systems
- Master thesis: *"EVADE: Emergent Value Function Approximation for Distributed Environments"*
  - Supervision: Claudia Linnhoff-Popien, Lenz Belzner
  - Results published at AAMAS 2018 as a **full conference paper**

2011 – 2015 **B.Sc. in Computer Science**, *Munich University of Applied Sciences*, Germany
- Collaborative study program (duales Studium) with the City of Munich
- Focus on software development and image processing
- Bachelor thesis: *"Quantification and Feature Extraction of 3D Single-Molecule Switching Microscopy Data"*
  - Supervision: Alfred Nischwitz, Joerg Bewersdorf
  - Practical work done at Bewersdorf Lab, Yale University
  - Results published in Cell 2016 as a **journal paper (cover story)**

Research Experience

2023 – Present **Postdoctoral Scholar**, *University of Southern California*, Los Angeles, CA, USA
- Advisor: Sven Koenig
- Focus on combinatorial optimization via multi-agent learning and reasoning.

2018 – 2023 **Research Assistant**, *LMU Munich*, Germany
- Advisor: Claudia Linnhoff-Popien
- Focus on emergence and resilience in multi-agent systems.

2015 **Visiting Scholar in Research (3 Months)**, *Yale University*, New Haven, CT, USA
- Advisor: Joerg Bewersdorf
- Focus on data analysis and feature extraction of cellular structures in super-resolution microscopy data. Co-authored publication in Cell 2016 (cover story).

Honors and Awards

2024 **GI Dissertation Award Nomination 2023**, *German Informatics Society (GI)*, Dagstuhl, Germany
Nominated candidate of LMU Munich with an invited talk at Dagstuhl. My dissertation is listed in an honorary collection in the *Lecture Notes in Informatics* published at https://dl.gi.de/collections/8a89b931-32cf-4a39-97a9-dc0630d5ace3.

2024 **Premier Paper of AAMAS 2024**, *Journal of the International Foundation for Autonomous Agents and Multi-Agent Systems (JAAMAS)*
Invitation to submit an extended version of our AAMAS 2024 paper *"Confidence-Based Curriculum Learning for Multi-Agent Path Finding"* (main author). Preprint at https://www.researchsquare.com/article/rs-5427877/v1

2024 **CRA Travel Grant for the CCC Artificial Intelligence/Operations Research Workshop III**, *Computing Community Consortium (CCC)*, Washington, DC, USA
Invitation and financial support from the Computing Research Association (CRA).

2024 **ICAART 2024 – Springer Selection**, *Lecture Notes in Artificial Intelligence*
Invitation to submit an extended version of our ICAART 2024 paper *"Multi-Agent Quantum Reinforcement Learning using Evolutionary Optimization"* (co-author). Published at https://link.springer.com/chapter/10.1007/978-3-031-87327-0_3

2023 **Outstanding Reviewer (Top 10%)**, *Conference on Neural Information Processing Systems (NeurIPS)*, New Orleans, LA, USA
Listed at https://neurips.cc/Conferences/2023/ProgramCommittee

2022 **Premier Paper of AAMAS 2022**, *Journal of the International Foundation for Autonomous Agents and Multi-Agent Systems (JAAMAS)*
Invitation to submit an extended version of our AAMAS 2022 paper *"Emergent Cooperation from Mutual Acknowledgment Exchange"* (main author). Published at https://link.springer.com/article/10.1007/s10458-024-09666-5

2022 **Highlight Paper at the Workshop on Ad Hoc Teamwork**, *International Joint Conference on Artificial Intelligence (IJCAI)*, Vienna, Austria
Recognition of our AAMAS 2022 paper *"Emergent Cooperation from Mutual Acknowledgment Exchange"* (main author) with an invited talk. More details at https://sites.google.com/view/ad-hoc-teamwork/waht-2022

2022 **Outstanding Reviewer (Top 10%)**, *International Conference on Machine Learning (ICML)*, Baltimore, MD, USA
Listed at https://icml.cc/Conferences/2022/Reviewers

2021 **ICAART 2021 – Springer Selection**, *Lecture Notes in Artificial Intelligence*
Invitation to submit an extended version of our ICAART 2021 paper *"SAT-MARL: Specification Aware Training in Multi-Agent Reinforcement Learning"* (co-author). Published at https://link.springer.com/chapter/10.1007/978-3-031-10161-8_1

2019 **DAAD Travel Grant for AAMAS 2019**, *German Academic Exchange Service*, Montreal, Canada

2016 **Best Bachelor Award**, *Rohde & Schwarz GmbH & Co. KG*, Munich, Germany

2016 **Award for an Outstanding Bachelor Thesis in the Field of Image Processing**, *Stemmer Imaging GmbH*, Munich, Germany

2012 – 2017 **Scholarship**, *German Academic Scholarship Foundation*, Munich, Germany
In Germany, the top 0.5% of university or high school students get selected for funding.

Research Projects

2024 – Present **Causal Foundations of Decision-Making and Learning**, *National Science Foundation*, Los Angeles, CA, USA
Research on causal reinforcement learning and planning together with Columbia University and University of California, Irvine.

2023 – Present **AI4OPT – AI Institute for Advances in Optimization**, *National Science Foundation*, Los Angeles, CA, USA
Research on combinatorial optimization via multi-agent learning and reasoning together with the Georgia Institute of Technology.

2023 **Dependability of Machine Learning in Industrial Robotics**, *Siemens AG*, Munich, Germany
Research on robust machine learning in industrial robotics. Assisted acquisition.

2022 – 2024 **Intelligent and Cognitive Systems**, *Bavarian Ministry of Economic Affairs, Regional Development, and Energy*, Munich, Germany
Research on emergence in multi-agent learning together with Fraunhofer IKS. Assisted acquisition.

2022 **Validation and Verification of Modular Machine Learning Systems**, *Siemens AG*, Munich, Germany
Research on modular machine learning. Assisted acquisition.

2020 – 2021 **Dependable MLOps in Industrial Environments**, *Siemens AG*, Munich, Germany
Research on adaptive testing in MLOps systems. Assisted acquisition.

2019 **Dependability of Machine Learning in Industrial Environments**, *Siemens AG*, Munich, Germany
Research on resilience in multi-agent reinforcement learning.

2018 **Coevolution in Machine Learning Based Industrial Environments**, *Siemens AG*, Munich, Germany
Research on scenario coevolution in reinforcement learning.

2018 – 2023 **InnoMI – Innovation Center Mobile Internet**, *Bavarian Ministry of Economic Affairs, Regional Development, and Energy*, Munich, Germany
Research on innovative mobile and distributed systems.

Selected Publications

Conferences

Extended abstracts (≤ 3 pages) with a full conference or journal version are not listed.

2025 [C21] **Anytime Multi-Agent Path Finding with an Adaptive Delay-Based Heuristic**
Thomy Phan, Benran Zhang, Shao-Hung Chan, and Sven Koenig.
AAAI Conference on Artificial Intelligence (**AAAI**), pages 23286–23294, 2025. Oral Presentation (less than 5%, out of 12,957 papers).

[C20] **Counterfactual Online Learning for Open-Loop Monte Carlo Planning**
Thomy Phan, Shao-Hung Chan, and Sven Koenig.
AAAI Conference on Artificial Intelligence (**AAAI**), pages 26651–26658, 2025.

2024 [C19] **Adaptive Anytime Multi-Agent Path Finding using Bandit-Based Large Neighborhood Search**
Thomy Phan, Taoan Huang, Bistra Dilkina, and Sven Koenig.
AAAI Conference on Artificial Intelligence (**AAAI**), pages 17514–17522, 2024.

[C18] **Confidence-Based Curriculum Learning for Multi-Agent Path Finding**
Thomy Phan, Joseph Driscoll, Justin Romberg, and Sven Koenig.
International Conference on Autonomous Agents and Multiagent Systems (**AAMAS**), pages 1558–1566, 2024. **Premier Paper** of *AAMAS 2024* with an invitation to the *Journal on Autonomous Agents and Multi-Agent Systems (JAAMAS)*.

[C17] **Anytime Multi-Agent Path Finding Using Operator Parallelism in Large Neighborhood Search (Extended Abstract)**
Shao-Hung Chan, Zhe Chen, Dian-Lun Lin, Yue Zhang, Daniel Harabor, Sven Koenig, Tsung-Wei Huang, and **Thomy Phan**.
International Conference on Autonomous Agents and Multiagent Systems (**AAMAS**), pages 2183–2185, 2024.

[C16] **Multi-Agent Quantum Reinforcement Learning Using Evolutionary Optimization**
Michael Kölle, Felix Topp, **Thomy Phan**, Philipp Altmann, Jonas Nüßlein, Claudia Linnhoff-Popien.
International Conference on Agents and Artificial Intelligence (**ICAART**), pages 71–82, 2024. **ICAART 2024 — Springer Selection** with an invitation to the *Lecture Notes in Artificial Intelligence*. Co-mentored bachelor student work.

2023 [C15] **Attention-Based Recurrence for Multi-Agent Reinforcement Learning under Stochastic Partial Observability**
Thomy Phan, Fabian Ritz, Philipp Altmann, Maximilian Zorn, Jonas Nüßlein, Michael Kölle, Thomas Gabor, and Claudia Linnhoff-Popien.
International Conference on Machine Learning (**ICML**), pages 27840–27853, 2023.

[C14] **CROP: Towards Distributional-Shift Robust Reinforcement Learning using Compact Reshaped Observation Processing**
Philipp Altmann, Leonard Feuchtinger, Fabian Ritz, Jonas Nüßlein, Claudia Linnhoff-Popien, and **Thomy Phan**.
International Joint Conference on Artificial Intelligence (**IJCAI**), pages 3414–3422, 2023.

2022 [C13] **Emergent Cooperation from Mutual Acknowledgment Exchange**
Thomy Phan, Felix Sommer, Philipp Altmann, Fabian Ritz, Lenz Belzner, and Claudia Linnhoff-Popien.
International Conference on Autonomous Agents and Multiagent Systems (**AAMAS**), pages 1047–1055, 2022. **Highlight Paper** at the *IJCAI Workshop on Ad Hoc Teamwork 2022* and **Premier Paper** of *AAMAS 2022* with an invitation to the *Journal on Autonomous Agents and Multi-Agent Systems (JAAMAS)*.

[C12] **Towards Anomaly Detection in Reinforcement Learning (Blue Sky Ideas)**
Robert Müller, Steffen Illium, **Thomy Phan**, Tom Haider, and Claudia Linnhoff-Popien.
International Conference on Autonomous Agents and Multiagent Systems (**AAMAS**), pages 1799–1803, 2022.

2021 [C11] **VAST: Value Function Factorization with Variable Agent Sub-Teams**
Thomy Phan, Fabian Ritz, Lenz Belzner, Philipp Altmann, Thomas Gabor, and Claudia Linnhoff-Popien.
Advances in Neural Information Processing Systems (**NeurIPS**), pages 24018–24032, 2021.

[C10] **Resilient Multi-Agent Reinforcement Learning with Adversarial Value Decomposition**
Thomy Phan, Lenz Belzner, Thomas Gabor, Andreas Sedlmeier, Fabian Ritz, and Claudia Linnhoff-Popien.
AAAI Conference on Artificial Intelligence (**AAAI**), pages 11308–11316, 2021.

[C9] **SAT-MARL: Specification Aware Training in Multi-Agent Reinforcement Learning**
Fabian Ritz, **Thomy Phan**, Robert Müller, Thomas Gabor, Andreas Sedlmeier, Marc Zeller, Jan Wieghardt, Reiner Schmid, Horst Sauer, Cornel Klein, and Claudia Linnhoff-Popien.
International Conference on Agents and Artificial Intelligence (**ICAART**), pages 28—37, 2021. **ICAART 2021 — Springer Selection** with an invitation to the *Lecture Notes in Artificial Intelligence*.

2020 [C8] **Learning and Testing Resilience in Cooperative Multi-Agent Systems**
Thomy Phan, Thomas Gabor, Andreas Sedlmeier, Fabian Ritz, Bernhard Kempter, Cornel Klein, Horst Sauer, Reiner Schmid, Jan Wieghardt, Marc Zeller, and Claudia Linnhoff-Popien.
International Conference on Autonomous Agents and Multiagent Systems (**AAMAS**), pages 1055–1063, 2020.

[C7] **A Quantum Annealing Algorithm for Finding Pure Nash Equilibria in Graphical Games**
Christoph Roch, **Thomy Phan**, Sebastian Feld, Robert Müller, Thomas Gabor, Carsten Hahn, and Claudia Linnhoff-Popien.
International Conference on Computational Science (**ICCS**), pages 488–501, 2020.

2019 [C6] **Memory Bounded Open-Loop Planning in Large POMDPs using Thompson Sampling**
Thomy Phan, Lenz Belzner, Marie Kiermeier, Markus Friedrich, Kyrill Schmid, and Claudia Linnhoff-Popien.
AAAI Conference on Artificial Intelligence (**AAAI**), pages 7941–7948, 2019.

[C5] **Adaptive Thompson Sampling Stacks for Memory Bounded Open-Loop Planning**
Thomy Phan, Thomas Gabor, Robert Müller, Christoph Roch, and Claudia Linnhoff-Popien.
International Joint Conference on Artificial Intelligence (**IJCAI**), pages 5607–5613, 2019.

[C4] **Subgoal-Based Temporal Abstraction in Monte-Carlo Tree Search**
Thomas Gabor, Jan Peter, **Thomy Phan**, Christian Meyer, and Claudia Linnhoff-Popien.
International Joint Conference on Artificial Intelligence (**IJCAI**), pages 5562–5568, 2019.

[C3] **Distributed Policy Iteration for Scalable Approximation of Cooperative Multi-Agent Policies (Extended Abstract)**
Thomy Phan, Kyrill Schmid, Lenz Belzner, Thomas Gabor, Sebastian Feld, and Claudia Linnhoff-Popien.
International Conference on Autonomous Agents and Multiagent Systems (**AAMAS**), pages 2162–2164, 2019.

[C2] **Scenario Co-Evolution for Reinforcement Learning on a Grid World Smart Factory Domain**
Thomas Gabor, Andreas Sedlmeier, Marie Kiermeier, **Thomy Phan**, Marcel Henrich, Monika Pichlmair, Bernhard Kempter, Cornel Klein, Horst Sauer, Reiner Schmid, and Jan Wieghardt.
Genetic and Evolutionary Computation Conference (**GECCO**), pages 898–906, 2019.

2018 [C1] **Leveraging Statistical Multi-Agent Online Planning with Emergent Value Function Approximation**
Thomy Phan, Lenz Belzner, Thomas Gabor, and Kyrill Schmid.
International Conference on Autonomous Agents and Multiagent Systems (**AAMAS**), pages 730–738, 2018.

Journals

2025 [J8] **Generative Curricula for Multi-Agent Path Finding via Unsupervised and Reinforcement Learning**
Thomy Phan, Timy Phan, and Sven Koenig.
Journal of Artificial Intelligence Research (**JAIR**). 82, pages 2471–2534, 2025.

[J7] **Architectural Influence on Variational Quantum Circuits in Multi-Agent Reinforcement Learning: Evolutionary Strategies for Optimization**
Michael Kölle, Karola Schneider, Sabrina Egger, Felix Topp, **Thomy Phan**, Philipp Altmann, Jonas Nüßlein, and Claudia Linnhoff-Popien.
Agents and Artificial Intelligence, pages 50–79, 2025. Invited from *ICAART 2024*.

2024 [J6] **Emergent Cooperation from Mutual Acknowledgment Exchange in Multi-Agent Reinforcement Learning**
Thomy Phan, Felix Sommer, Fabian Ritz, Philipp Altmann, Jonas Nüßlein, Michael Kölle, Lenz Belzner, and Claudia Linnhoff-Popien.
*Autonomous Agents and Multi-Agent Systems (***JAAMAS***)*, 38(34), 2024. Invited from AAMAS 2022.

[J5] **Discriminative Reward Co-Training**
Philipp Altmann, Fabian Ritz, Maximilian Zorn, Michael Kölle, **Thomy Phan**, Thomas Gabor, and Claudia Linnhoff-Popien.
Neural Computing and Applications (**NCAA**), 2024.

2022 [J4] **Specification Aware Multi-Agent Reinforcement Learning**
Fabian Ritz, **Thomy Phan**, Robert Müller, Thomas Gabor, Andreas Sedlmeier, Marc Zeller, Jan Wieghardt, Reiner Schmid, Horst Sauer, Cornel Klein, and Claudia Linnhoff-Popien.
Agents and Artificial Intelligence, pages 3–21, 2022. Invited from *ICAART 2021*.

2021 [J3] **Productive Fitness in Diversity-Aware Evolutionary Algorithms**
Thomas Gabor, **Thomy Phan**, and Claudia Linnhoff-Popien.
Natural Computing, 20(3): 363–376, 2021.

2020 [J2] **The Scenario Coevolution Paradigm: Adaptive Quality Assurance for Adaptive Systems**
Thomas Gabor, Andreas Sedlmeier, **Thomy Phan**, Fabian Ritz, Marie Kiermeier, Lenz Belzner, Bernhard Kempter, Cornel Klein, Horst Sauer, Reiner Schmid, Jan Wieghardt, Marc Zeller, and Claudia Linnhoff-Popien.
*International Journal on Software Tools for Technology Transfer (***STTT***)*, 22(4): 457–476, 2020.

2016 [J1] **Ultra-High Resolution 3D Imaging of Whole Cells (Cover Story)**
Fang Huang, George Sirinakis, Edward S Allgeyer, Lena K Schroeder, Whitney C Duim, Emil B Kromann, **Thomy Phan**, Felix E Rivera-Molina, Jordan R Myers, Irnov Irnov, Mark Lessard, Yongdeng Zhang, Mary Ann Handel, Christine Jacobs-Wagner, C Patrick Lusk, James E Rothman, Derek Toomre, Martin J Booth, and Joerg Bewersdorf.
Cell, 166(4): 1028–1040, 2016. Cover Story.

Workshops

Workshop papers with a conference or journal version are not listed.

2020 [W2] **The Holy Grail of Quantum Artificial Intelligence: Major Challenges in Accelerating the Machine Learning Pipeline**
Thomas Gabor, Leo Sünkel, Fabian Ritz, **Thomy Phan**, Lenz Belzner, Christoph Roch, Sebastian Feld, and Claudia Linnhoff-Popien.
International Workshop on Quantum Software Engineering (**Q-SE**) at ICSE 2020, pages 456–461, 2020.

[W1] **A Distributed Policy Iteration Scheme for Cooperative Multi-Agent Policy Approximation**
Thomy Phan, Lenz Belzner, Kyrill Schmid, Thomas Gabor, Fabian Ritz, Sebastian Feld, and Claudia Linnhoff-Popien.
Adaptive and Learning Agents Workshop (**ALA**) at AAMAS, 2020.

Community Activities

Organizing Committee

2019 International Symposium on Applied Artificial Intelligence (ISAAI). More details at https://digitaleweltmagazin.de/digicon-2019/symposium/

Action Editor

2024 – Present Transactions on Machine Learning Research (TMLR)

Program Committee/Reviewer

2023 – 2025 International Joint Conference on Artificial Intelligence (IJCAI)
2022 – 2025 Conference on Neural Information Processing Systems (NeurIPS)
2022 – 2025 International Conference on Machine Learning (ICML)
2024 – 2025 International Conference on Learning Representations (ICLR)
2024 – 2025 International Conference on Automated Planning and Scheduling (ICAPS)
2021 – 2025 AAAI Conference on Artificial Intelligence (AAAI)
2025 International Conference on Artificial Intelligence and Statistics (AISTATS)
2023 – 2024 European Conference on Artificial Intelligence (ECAI)
2024 Genetic and Evolutionary Computation Conference (GECCO)
2023 International Conference on Autonomous Agents and Multiagent Systems (AAMAS – Blue Sky Ideas)

Talks

Invited Talks

09/2024 **Towards Scalable Optimization via Multi-Agent Reinforcement Learning**, *Workshop on Quantum Algorithm Design Automation at IEEE QCE*, Montreal, Canada (virtual)
More details at https://sites.google.com/view/ieee-qada/schedule

06/2024 **Towards Scalable Optimization via Multi-Agent Reinforcement Learning**, *Interactive Visualization and Intelligence Augmentation Lab (IVIA)*, ETH Zürich (virtual), Switzerland
Invited talk at the IVIA-lab headed by Prof. Mennatallah El-Assady.

06/2024 **Reinforcement Learning-Based Multi-Agent Path Finding**, Bosch Research, Renningen, Germany (virtual)
Presentation of our AAMAS 2024 paper *"Confidence-Based Curriculum Learning for Multi-Agent Path Finding"* and the latest results of ongoing research.

07/2022 **Emergent Cooperation from Mutual Acknowledgment Exchange**, Workshop on Ad Hoc Teamwork at IJCAI 2022 (virtual)
Highlight presentation of our AAMAS 2022 paper *"Emergent Cooperation from Mutual Acknowledgment Exchange"* (main author). More details at https://sites.google.com/view/ad-hoc-teamwork/waht-2022

06/2021 **Stability in AI-Systems**, Digitale Stadt München e.V., Germany (virtual)
DigiTalk event on Safe Intelligence of the Digital City Association of Munich. More details at https://digitalestadtmuenchen.de/event/safe-intelligence/

12/2020 **"Künstliche Intelligenz: Wie lernen Roboter?"**, Gymnasium Berchtesgaden, Germany (virtual)
P-seminar talk for high school students and the Junior Science Café. I received an invitation because of my successful talk at the Unitag event of LMU Munich in 2019 (see below).

03/2019 **Building Autonomous Systems with AI**, *University of Augsburg*, Germany
AI workshop for students of the Software Engineering Elite Graduate Program in Bavaria.

Presentations at Conferences as the Main Author

02/2025 **Anytime Multi-Agent Path Finding with an Adaptive Delay-Based Heuristic**, Philadelphia, PA, USA
AAAI Conference on Artificial Intelligence (AAAI).

02/2024 **Adaptive Anytime Multi-Agent Path Finding Using Bandit-Based Large Neighborhood Search**, Vancouver, Canada
AAAI Conference on Artificial Intelligence (AAAI).

07/2023 **Attention-Based Recurrence for Multi-Agent Reinforcement Learning under Stochastic Partial Observability**, Honolulu, Hawaii, USA
International Conference on Machine Learning (ICML).

05/2022 **Emergent Cooperation from Mutual Acknowledgment Exchange**, virtual
International Conference on Autonomous Agents and Multiagent Systems (AAMAS).

12/2021 **VAST: Value Function Factorization with Variable Agent Sub-Teams**, virtual
Conference on Neural Information Processing Systems (NeurIPS).

02/2021 **Resilient Multi-Agent Reinforcement Learning with Adversarial Value Decomposition**, virtual
AAAI Conference on Artificial Intelligence (AAAI).

05/2020 **Learning and Testing Resilience in Cooperative Multi-Agent Systems**, virtual
International Conference on Autonomous Agents and Multiagent Systems (AAMAS).

08/2019 **Adaptive Thompson Sampling Stacks for Memory Bounded Open-Loop Planning**, Macao, China
International Joint Conference on Artificial Intelligence (IJCAI).

05/2019 **Distributed Policy Iteration for Scalable Approximation of Cooperative Multi-Agent Policies**, Montreal, Canada
International Conference on Autonomous Agents and Multiagent Systems (AAMAS).

02/2019 **Memory Bounded Open-Loop Planning in Large POMDPs using Thompson Sampling**, Honolulu, Hawaii, USA
AAAI Conference on Artificial Intelligence (AAAI).

07/2018 **Leveraging Statistical Multi-Agent Online Planning with Emergent Value Function Approximation**, Stockholm, Sweden
International Conference on Autonomous Agents and Multiagent Systems (AAMAS).

Other Talks

2019 **Unitag – "Künstliche Intelligenz: Wie lernen Roboter?"**, *LMU Munich*, Germany
University event for gifted high school students from Upper Bavaria.

Teaching

University of Southern California, USA

1.0 unit corresponds to 1 presence hour per week.

Spring 2024 **CSCI 599: Autonomous Decision-Making (4.0 Units) [Self-Developed]**
- Lecture on reinforcement learning, planning, and multi-agent systems
- Main instructor
- Syllabus and registration count provided at https://classes.usc.edu/term-20241/course/csci-599/

Spring 2024 **CSCI 499: Foundations of Multi-Agent Systems (Guest Lecture)**
- Lecture on multi-agent algorithms and applications given by Prof. Sven Koenig
- Guest lecturer for two sessions on multi-agent reinforcement learning
- Syllabus and registration count provided at https://classes.usc.edu/term-20241/course/csci-499/

2023 – 2024 **Student Mentoring (1.0 – 2.0 Units)**

Topic overview at https://thomyphan.github.io/teaching/directed_research/
- 1 PhD student with one publication at AAMAS 2024
- 1 bachelor project with one publication at AAAI 2025 (+ Oral Presentation, AAAI Student Travel Grant, and Nomination for the USC Viterbi Research Award)

LMU Munich, Germany

2019 – 2023 **Autonomous Systems (6 ECTS) [Self-Developed]**
- Practical course for 12 – 18 master students on planning and reinforcement learning
- Main instructor until summer semester 2022
- Syllabus and registration count for summer semester 2022 provided at https://uni2work.ifi.lmu.de/course/S22/IfI/ASP

2019 – 2023 **Working Group "Artificial Intelligence" (No ECTS)**
- Voluntary seminar for more than 100 students on current AI topics
- Main instructor
- Syllabus and registration count for summer semester 2022 provided at https://uni2work.ifi.lmu.de/course/S22/IfI/AIAG

Winter 2022 **Computational Intelligence (Guest Lecture)**
- Lecture on intelligent optimization algorithms given by Dr. Thomas Gabor
- Guest lecturer for one session on multi-agent optimization
- Syllabus and registration count provided at https://uni2work.ifi.lmu.de/course/W22/IfI/CoIn

2018 – 2019 **Mobile and Distributed Systems (6 ECTS)**
- Practical course for 12 – 18 master students on mobile app development and on-device machine learning
- Assisting instructor

2018 – 2023 **Student Mentoring (15 – 30 ECTS)**

Topic overview at https://thomyphan.github.io/teaching/student_theses/
- 1 PhD student with publications at IJCAI 2023 and NCAA 2024
- 26 master theses with publications at IJCAI 2019, AAMAS 2022 (+ Recognition as an AAMAS Premier Paper and a Highlight Paper at the IJCAI 2022 Workshop on Ad Hoc Teamwork), and JAAMAS 2024
- 24 bachelor theses with one student admitted to the *Max Planck Research School for Intelligent Systems (IMPRS-IS)* program for outstanding PhD students (supported by my recommendation letter)
- 8 individual research projects with one publication at GECCO 2019