Bektur Ryskeldiev, PhD

Postdoc at Digital Nature Group, MEXT and Heidelberg Laureate Scholar
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EDUCATION

UNIVERSITY OF AIZU
PhD in Computer Science
2015-2018

UNIVERSITY OF AIZU
MSc in Computer Science
2013–2015

AMERICAN UNIVERSITY OF CENTRAL ASIA
BA in Software Engineering
2008–2012

LINKS

Web: **apolotary.com**

SKILLS

TECHNOLOGIES

- Spatial Media
- Mobile XR
- Media Streaming
- Affective Interfaces
- Telepresence
- Assistive Technology
- Social Computing
- Motion Graphics

LANGUAGES

- ObjC
- C / C# / C++
- Python
- R
- Pure Data / Max / Jitter
- Notch
- Processing

EXTRACURRICULAR

FOUNDER OF:

Deep Perception Hackathon - (with Machine Learning Tokyo)
eXtending Reality Tokyo
eXtending Reality Bishkek
Japan Mechanical Keyboard Group
Tokyo Mechanical Keyboard Meetup

PRESENTER AT:

eXtending Reality Bishkek (2018)
SIGGRAPH Spotlight (since 2017)
Tokyo iOS Meetup (2014–2017)
Bishkek Developer Meetup (2016-2017)
Tokyo Mechanical Keyboard Meetup (2016-2017)

I am a Kyrgyzstani-born multidisciplinary researcher and creative technologist, focused on **spatial and social computing**, **human-computer interaction (HCI)**, **remote collaboration**, **telepresence**, **immersive media**, and **digital art**.

My primary expertise includes work in **mobile development**, **AR/VR/XR applications**, and **creative coding**. Aside from my main goals I also explore possibilities within the fields of **assistive technology**, **AI for creativity**, **motion graphics**, and **IoT healthcare**.

RESEARCH EXPERIENCE (SINCE 2013, ~6 YEARS)

UNIVERSITY OF TSUKUBA | Postdoctoral Research Fellow
JST CREST xDiversity postdoctoral researcher at **Digital Nature Group**, working under the guidance of **Prof. Yoichi Ochiai**
since April 2018 (until March 2020)

MUTEK | AI Music Lab Fellow
One of the creative technologists selected to participate in a **AI + media art** lab hosted by Mutek in Tokyo
since October 2019

ACM SIGCHI | CHI 2021 Mobile App Chair
Support and development of mobile conference application for CHI 2021
since October 2019

DEEP PERCEPTION HACKATHON | Co-founder
Co-founder and organizer of one of the first **AI+XR** hackathons in Japan, in collaboration with **Machine Learning Tokyo**
since September 2019

ACM SIGGRAPH
ACM VRCAI Conference Publicity Chair (2019)
Managing conference announcements and communications
S3: SIGGRAPH Student Services (since 2017)
Invited mentor for applicants interested in XR & HCI research
International Resources Committee Team Leader (since 2017)
Managing the Audio Guides and Podcasts Team
Student Volunteer Program (2015-2017)
Student Volunteer (SV) at ACM SIGGRAPH and ACM SIGGRAPH Asia, **SV Team Leader** at **E-Tech**, **VR Village**, and Registration in 2016-17 (Asia)
since 2015

NTT LABORATORIES | Research Intern at Musashino R&D Center
Research internship on video streaming quality control.
August - September 2017

UNIV. OF APPLIED SCIENCES DÜSSELDORF | Visiting Researcher
Worked on real-time mixed reality broadcasting studios, telepresence, and VR interfaces under the guidance of **Prof. Jens Herder** at **VSVR laboratory**.
February 2017

COMPUTER ARTS LABORATORY | Research Assistant
Worked on spatial audio and wireless distributed and multimodal interfaces under the guidance of **Prof. Michael Cohen (University of Aizu)** and **Prof. Julián Villegas (University of Aizu)**.
2013-2018

INDUSTRIAL EXPERIENCE (2011-2016, ~5 YEARS)

HELIUM9 GAMES | Mobile Consultant, Unity Developer
Integrated proprietary AI technology for iOS-based Unity game project
2015–2016

AIZULAB | iOS Developer
Developed application for control of distributed smart house systems.
2014–2015

SIBERS | iOS Developer
Image and audio processing, QA, training and supervision of junior developers
2011–2013

AWARDS / SCHOLARSHIPS / GRANTS

2019 Heidelberg Laureate Forum (selected as one of 200 young researchers)
2019 JSPS Grant-in-Aid for Early-Career Scientists (grant number 19K20313)
2018 ACM SIGGRAPH Asia 2018 Doctoral Consortium
2018 ACM SIGGRAPH 2018 Thesis Fast Forward
2017 ACM SIGCHI 2018 Doctoral Consortium
2017 University of Aizu Graduate School Information Fair, Best Poster 2nd Place
2017 ACM SIGGRAPH Turing Award Celebration Grant
2017 First place in IoT Section at FUKUSHIMA Hackathon 2017
2016 First place in IoT Section at IoT x Security Hackathon 2016
2015 Best Poster award 3rd prize at ACM SIGGRAPH VRCAI Conf.
2013 Best Paper prize at Tohoku-Section Joint Convention
2013 MEXT Scholarship for Master's (2013) and PhD (2015) programs

ACADEMIC ACTIVITIES

PUBLICATIONS

My online publication list can be accessed here: http://apolotary.com/References/full.htm
Full publication list can be provided upon request.

TALKS

ACM SIGGRAPH Asia

Selected speaker for **ACM SIGGRAPH Asia 2018 Doctoral Consortium**
Invited speaker for **CG in Asia session** (2018)
Organizer for **Understanding Asia: Focus Japan session** (2018), **BoF: What Makes a Good Keyboard?** (2018)

ACM SIGGRAPH

Selected speaker for **ACM SIGGRAPH 2018 Thesis Fast Forward** program
Invited speaker for **CG in Asia session** (2018, 2019)
Organizer for **SIGGRAPH in Japanese + Japan CG Showcase session** (2017, 2018, 2019) and
BoF: Assisting the world's aging and disabled population through computational methods (2019)

University of Aizu Graduate School Information Fair

2016-2017
Presented posters and live demonstrations of current research projects on applications of spatial data to social media streaming.

International Symposium on Spatial Media

2015, 2018
Presented a demo for "Exploring Virtual Sound Environments with Mobile Devices" paper (2015) and StreamSpace (2018)

PAPER REVIEWS

ACM CHI 2019 | Associate Chair for Late Breaking Work section

Paper reviewer at:
ACM SUI 2019,* **ISMAR 2019**,* **ACM SIGGRAPH 2018**** (Posters), **ACM SIGGRAPH Asia 2018-19**** (Emerging Technologies), **IEEE SMC 2018**,* ***ACM SIGCHI 2018**** (Late Breaking Work), **ARTECH 2017**,* **JVRB (2016-2017)**,* **ACE (2016)***
* - full papers, ** - extended abstracts

PUBLICATIONS (WITH PEER REVIEW)

JOURNALS

[1] **B. Ryskeldiev**, M. Cohen, and J. Herder, "StreamSpace: Pervasive Mixed Reality Telepresence for Remote Collaboration on Mobile Devices," *Journal of Information Processing*, vol. 26, pp. 177–185, 2018. doi: 10.2197/ipsjjip.26.177.

[2] M. Cohen, R. Ranaweera, **B. Ryskeldiev**, T. Oyama, and A. Hashimoto, ""Twhirleds": Spun and whirled affordances controlling multimodal mobile-ambient environments with reality distortion and synchronized lighting to preserve intuitive alignment," *Scientific Phone Apps and Mobile Devices*, vol. 3, pp. 1–20, 2017. doi: 10.1186/s41070-017-0017-x.

CONFERENCES

[3] H. Hasada, J. Zhang, K. Yamamoto, **B. Ryskeldiev**, and Y. Ochiai, "AR Cooking: Comparing Display Methods for the Instructions of Cookwares on AR Goggles," in *HCI International*, 2019, pp. 1–6.

[4] J. Herder, S. Takeda, K. Vermeegen, T. Davin, D. Berners, **B. Ryskeldiev**, C. Geiger, I. Druzetic, and C. Zimmer, "Mixed Reality Art Experiments - Immersive Access to Collective Memories," in *Int. Symp. on Electronic Art (ISEA)*, 2019, pp. 1–9.

[5] N. Brettschneider, J. Herder, J. de Mooij, B. Ryskeldiev, and **B. Ryskeldiev**, "Audio vs. Visual Avatars as Guides in Virtual Environments," in *21st Int. Conf. on Humans and Computers*, 2019, pp. 1–10.

[6] J. Herder, N. Brettschneider, J. de Mooij, and **B. Ryskeldiev**, "Avatars for Co-located Collaborations in HMD-based Virtual Environments," in *IEEE Conf. on Virtual Reality and 3D User Interfaces (VR)*, 2019, pp. 1–2.

[7] **B. Ryskeldiev**, T. Igarashi, J. Zhang, Y. Ochiai, M. Cohen, and J. Herder, "Spotility: Crowdsourced Telepresence for Social and Collaborative Experiences in Mobile Mixed Reality," in *ACM Conf. on Computer Supported Cooperative Work and Social Computing (CSCW)*, 2018, pp. 373–376. doi: 10.1145/3272973.3274100.

[8] **B. Ryskeldiev**, M. Cohen, J. Herder, and Y. Ochiai, "ReactSpace: Spatial-Aware User Interactions for Collocated Social Live Streaming Experiences," in *IEEE Int. Conf. on Systems, Man, and Cybernetics (SMC)*, 2018, pp. 728–732. doi: 10.1109/SMC.2018.00132.

[9] K. Yamamoto, R. Iwasaki, T. Minagawa, R. Kawamura, **B. Ryskeldiev**, and Y. Ochiai, "BOLCOF: Base Optimization for Middle Layer Completion of 3D-printed Objects Without Failure," in *ACM SIGGRAPH*, 2018, pp. 1–2. doi: 10.1145/3230744.3230768.

[10] **B. Ryskeldiev**, "Spatial Social Media: Towards Collaborative Mixed Reality Telepresence "On The Go"," in *ACM SIGCHI Extended Abstracts*, 2018, pp. 1–4. doi: 10.1145/3170427.3173020.

[11] J. Herder, P. Ladwig, K. Vermeegen, D. Hergert, F. Busch, K. Klever, S. Holthausen, and **B. Ryskeldiev**, "Mixed Reality Experience - How to Use a Virtual (TV) Studio for Demonstration of Virtual Reality Applications," in *13th Int. Conf. on Computer Graphics Theory and Applications (GRAPP)*, 2018, pp. 281–287. doi: 10.5220/0006637502810287.

[12] **B. Ryskeldiev**, Y. Ochiai, M. Cohen, and J. Herder, "Distributed Metaverse: Creating Decentralized Blockchain-based Model for Peer-to-peer Sharing of Virtual Spaces for Mixed Reality Applications," in *Proc. of the 9th Augmented Human Int. Conf.*, 2018, pp. 1–3. doi: 10.1145/3174910.3174952.

[13] **B. Ryskeldiev**, M. Cohen, and J. Herder, "Applying Rotational Tracking and Photospherical Imagery to Immersive Mobile Telepresence and Live Video Streaming Groupware," in *ACM SIGGRAPH Asia Mobile Graphics & Interactive Applications*, 2017, pp. 1–2. doi: 10.1145/3132787.3132813.

[14] M. Cohen, Y. Nagayama, and **B. Ryskeldiev**, "Metering "Black Holes": Networking Stand-alone Applications for Distributed Multimodal Synchronization," in *Proc.of the 18th ACM Int. Conf. on Multimodal Interaction (ICMI)*, 2016, pp. 396–397. doi: 10.1145/2993148.2998530.

[15] **B. Ryskeldiev**, M. Cohen, and J. Villegas, "Rendering Spatial Audio Through Dynamically Reconfigurable Smartphone Loudspeaker Arrays," in *ACM SIGGRAPH VRCAI*, (non-archival), 2015, pp. 1–1.

[16] N. Tsukida, **B. Ryskeldiev**, and M. Cohen, "Lights, Camera, Action!: Ambient Lighting Extending Photospherical Display," in *ACM SIGGRAPH VRCAI*, (non-archival), 2015, pp. 1–2.

[17] M. Cohen, R. Ranaweera, **B. Ryskeldiev**, T. Oyama, A. Hashimoto, N. Tsukida, and T. Miyaji, "Multimodal mobile-ambient transmedial twirling with environmental lighting to complement fluid perspective with phase-perturbed affordance projection," in *ACM SIGGRAPH Asia Mobile Graphics and Interactive Applications*, 2014, pp. 1–4. doi: 10.1145/2669062.2669080.

[18] ——, "Mixed Virtuality Transducer: Virtual Camera Relative Location Displayed As Ambient Light," in *ACM SIGGRAPH Asia Mobile Graphics and Interactive Applications*, 2014, pp. 1–1. doi: 10.1145/2669062.2684185.

[19] **B. Ryskeldiev**, J. Villegas, and M. Cohen, "Exploring Virtual Sound Environments with Mobile Devices," in *Tohoku-Section Joint Convention of Institutes of Electrical and Information Engineers, Japan*, 2013, pp. 104–104. doi: 10.11528/tsjc.2013.0_104.