Bence Cserna

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RESEARCH INTERESTS

Artificial intelligence, heuristic search, real-time planning, reinforcement learning, robotics

EDUCATION

Ph.D. in Computer Science August 2013 - May 2019 (Expected)
University of New Hampshire (UNH), U.S.A.
All but dissertation, GPA: 4.0
Dissertation title: Real-time Planning for Robots, Advisor: Wheeler Ruml

M.S. in Computer Science August 2011 – June 2013
Budapest University of Technology and Economics, Hungary
Highest Honors (top 1%)

Exchange Student (Computer Science) Fall 2012
University of New Hampshire, U.S.A.

Special Student (Computer Science) Fall 2011 – Spring 2012
Aquincum Institute of Technology, Hungary

B.S. in Computer Science September 2007 – December 2011
Budapest University of Technology and Economics, Hungary

PROFESSIONAL EXPERIENCE

AI Research Scientists, Intern, Lyft Level 5 Summer 2018

- Designed and developed a real-time spatio-temporal planner for the Lyft Level 5 AV that was successfully deployed on a physical system and completed road tests.
- Submitted 6 internal AV related patent proposals.

Autonomous Vehicle Research Intern, nuTonomy Summer 2017

- Improved the core planner of the nuTonomy autonomous vehicle using C++ and Python.
- Introduced real-time heuristic search to reduce latency and to improve consistency.
- Sped up several components of the planner by $10 - 400\%$.

Research Assistant, UNH Summer 2015 – Spring 2017

- Developed two open source, low-latency planning frameworks for real-time heuristic search.
- Created an evaluation suite for online multi-armed bandit algorithms.
- Implemented simple object detection for ROS using a Kinect sensor.

Research Assistant, Lamprey Networks Summer 2014 - Spring 2015

- Implemented a connected health care hub on Android.
- Developed multiple REST back-end services using Spring, MongoDB, and Protocol Buffers.

Software Engineer/Team Leader Fall 2010 - Summer 2013
Ericsson Research and Development Center (ETH), Budapest, Hungary

- Promoted to team leader of a high priority innovation project; supervised 6 people.
- Promoted to technical leader of an international cellular network caching research.

PROG. LANGUAGES

Kotlin, C++, Java, Python

REFEREED CONFERENCE PUBLICATIONS

Michael Cashmore, Andrew Coles, Bence Cserna, Erez Karpas, Daniele Magazzeni, Wheeler Ruml, "Temporal Planning While the Clock Ticks," *Proceedings of the International Conference on Automated Planning and Scheduling (ICAPS-18)*, 2018.

Bence Cserna, William Doyle, Jordan Ramsdell, and Wheeler Ruml, "Avoiding Dead Ends in Real-time Heuristic Search," *Proceedings of the twenty second AAAI Conference on Artificial Intelligence (AAAI-18)*, 2018. (Acceptance rate: 25%, Selected for oral presentation: top 11%)

Bence Cserna, Marek Petrik, Reazul Hasan Russel, Wheeler Ruml, "Value Directed Exploration in Multi-Armed Bandits with Structured Priors," *Proceedings of the Thirty-third Conference on Uncertainty in Artificial Intelligence (UAI-17)*, 2017. (Acceptance rate: 31%)

Bence Cserna, Wheeler Ruml, Jeremy Frank, "Metareasoning for On-line Planning with Durative Actions," *Proceedings of the International Conference on Automated Planning and Scheduling (ICAPS-17)* pp. 56-60, 2017.

REFEREED SYMPOSIUM PUBLICATIONS

Michael Cashmore, Andrew Coles, Bence Cserna, Erez Karpas, Daniele Magazzeni, Wheeler Ruml, "Situated Planning for Execution Under Temporal Constraints," *AAAI Spring Symposium on Integrating Representation, Reasoning, Learning, and Execution for Goal Directed Autonomy (SIRLE-18)*, 2018.

Bence Cserna, Mike Bogochow, Stephen Chambers, Michaela Tremblay, Sammie Katt, Wheeler Ruml, "Anytime versus Real-Time Heuristic Search for On-Line Planning," *Proceedings of the International Symposium on Combinatorial Search (SoCS-16)*, pp. 131-132, 2016.

Bence Cserna, "Planning with Concurrent Execution," *International Conference on Automated Planning and Scheduling*, Proceedings of the Doctoral Consortium, pp. 44-46, 2016.

PATENTS

Bence Cserna, Attila Mihaly, Gabor Paller, "Internet protocol video telephony with carrier grade voice," US20150189229A1, US9204092B2 (Filed: 2013 Granted: 2015).

Bence Cserna Attila Mihaly, "Method for transferring a communication session between devices," US20150245398A1, US9351328B2 (Filed: 2012 Granted: 2016).

HONORS

Inventor Award, Ericsson Research and Development	'12, '13, '16, '16
3rd place out of 100 teams $2,500, Holloway Prize Championship, UNH	2014
Best Thesis Award Nomination, Budapest Institute of Technology	2013
3rd place out of 50+ teams, Bee Smarter 24 Hour Programming Challenge	2013
Top 15 finalist out of 1000+ teams, CTF Competition, CSAW, NYC Poly	2012

FELLOWSHIPS

Dissertation Year Fellowship $24,300, Graduate School, UNH	2018 - 2019
Educational Scholarships $20,000, Hungarian Initiatives Foundation	2015 - 2016
Full Tuition Fellowship $29,410, Department of Computer Science, UNH	2014 - 2015
Full Tuition Scholarship $26,000, Acquincum Institute of Technology	2012, 2013
UNH Exchange Program Award $17,700, Budapest University of Technology	2012

TEACHING EXPERIENCE

Teaching Assistant, Artificial Intelligence, Machine Learning	Spring 2018
Algorithms, Databases	Spring 2017
Artificial Intelligence	Fall 2015, Fall 2016
Algorithms	Spring 2016
Databases, Computer Networks	Spring 2014
Object-Oriented Design and Development	Fall 2013

EXTRA-CURRICULAR EXPERIENCE

Artificial Intelligence Student Organization, *Founder and President*	2017 – Present
Android Development Lab, *Founder and President*	2014 – 2017
Entrepreneur Club, *Member*	2015
Cyber Security Club, *Member*	2012, 2013