William Macke

Ph.D. Student · Research Assistant

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Education

University of Texas at Austin — *Austin, TX*

Ph.D. in Computer Science — *2019–Present*

· Advisor: Peter Stone
· GPA: 4.0

University of Tulsa — *Tulsa, OK*

B.S. in Computer Science, Mathematics, Computer Simulation and Gaming — *2015–2019*

· Summa Cum Laude
· GPA: 4.0

Research Interests

◇ Ad Hoc Teamwork
◇ Multi-agent Reinforcement Learning

Publications

◇ **William Macke**, Reuth Mirsky and Peter Stone, "Expected Value of Communication for Planning in Ad Hoc Teamwork", *Accepted to AAAI 2021*

◇ Garret Bingham*, **William Macke***, Risto Miikkulainen, "Evolutionary Optimization of Deep Learning Activation Functions", *GECCO, 2020*

◇ Reuth Mirsky, **William Macke**, Andy Wang, Harel Yedidsion, and Peter Stone., "A penny for your thoughts: The value of communication in ad hoc teamwork.", *IJCAI, 2020*

◇ Zhuoshu Li, Kelsey Lieberman*, **William Macke*** Sofia Carrillo, Chien-Ju Ho, Jason Wellen, and Sanmay Das, "Incorporating compatible pairs in kidney exchange: A dynamic weighted matching model.", *ACM Conference on Economics and Computation, 2019*

◇ Jon Bolin, Chad Crawford, **William Macke**, Sam Beckman and Sandip Sen, "Gesture Based Control of Autonomous UAVs", *AAMAS extended abstract, 2017*

Non-Archival

◇ **William Macke**, Reuth Mirsky and Peter Stone, "Expected Divergence Point of Plans in Ad Hoc Teamwork", *NeurIPS Workshop on Cooperative AI (CoopAI), 2020*

◇ Jiaxun Cui, **William Macke**, Aastha Goyal, Harel Yedidsion, Daniel Urieli and Peter Stone, "Multiagent Driving Policy for Congestion Reduction in a Large Scale Scenario", *NeurIPS Workshop on Machine Learning for Autonomous Driving, 2020*

◇ **William Macke**, Reuth Mirsky and Peter Stone, "Query Content in Sequential One-shot Multi-Agent Limited Inquiries when Communicating in Ad Hoc Teamwork", *Presented at the ICAPS Workshop on Distributed Multi-Agent Planning (DMAP), 2020*

◇ Reuth Mirsky, **William Macke**, Andy Wang, Harel Yedidsion, and Peter Stone., "Communication in Ad Hoc Teamwork", *Presented at the AAAI Workshop on Planning and Intent Recognition (PAIR), 2020*

◇ Nathaniel Beckemeyer, **William Macke**, and Sandip Sen, "Stable Configurations with (Meta)Punishing Agents", *Presented at the AAMAS workshop on Multi-Agent Based Simulations (MABS), 2017*

Research Experience

*Equal contribution

University of Texas at Austin *Austin, TX*

Graduate Researcher *August 2019–Present*

· I am performing research toward the completion of a Ph.D. in the Learning Agents Research Group at UT Austin, under the supervision of my advisor, Professor Peter Stone.

Washington Univeristy in Saint Louis *Saint Louis, MO*

NSF REU Student *Summer 2018*

· Research Oportunities for Undergraduates (REU) consist of a number of sites funded by the NSF that allow undergraduate students to work with professors on research. I performed research and development of online matching algorithms for kidney exchange under the supervision of Professors Sanmay Das and Chien-Ju Ho at Washington University in Saint Louis.

University of Tulsa *Tulsa, OK*

Tulsa Undergraduate Research Challenge Scholar *Summer 2016/2017*

· TURC is a program at the University of Tulsa where undergraduate students work on research under professors during the summer. I performed research on several projects involving multi-agent systems under the supervision of Professor Sandip Sen.

Selected Software Projects

https://github.com/williammacke/KMeans (kmeans)

· Project demonstrates KMeans Clustering Algorithm graphically given 2 dimensional data as input.

Honors & Awards

2015 **Awardee**, University of Tulsa Presidential Scholarship (covering all tuition and living expenses)

2017 **Awardee**, AAMAS Multi-Agent Based Simulations Workshop Most Visionary Paper Award

Skills

Languages	C99 and C++17, Python2 and Python3, Java, R, Haskell, Bash, LaTeX
Libraries and Tools	TensorFlow, NumPy, SciPy, Pandas, SciKit-Learn, OpenCV, Eigen
Misc. Engineering	Git, CMake, GNU Make