ZIZHAO WANG

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EDUCATION

Columbia University *Sept. 2018 - Dec. 2019*
MS in Computer Science, GPA: 4.00/4.00

University of Michigan - Ann Arbor *Sept. 2016 - Apr. 2018*
BS in Computer Engineering, GPA: 3.96/4.00

Shanghai Jiao Tong University *Sept. 2014 - Aug. 2018*
BS in Electrical and Computer Engineering, GPA: 3.71/4.00

PUBLICATIONS

Iretiayo Akinola*, **Zizhao Wang***, Junyao Shi, Xiaomin He, Pawan Lapborisuth, Jingxi Xu, David Watkins-Valls, Paul Sajda, and Peter Allen. Accelerated Robot Learning via Human Brain Signals. *Preprint*, 2019.

Antonio Khalil Moretti*, **Zizhao Wang***, Luhuan Wu*, Iddo Drori, Itsik Pe'er. Particle Smoothing Variational Objectives. *Preprint*, 2019.

Antonio Khalil Moretti*, **Zizhao Wang***, Luhuan Wu, Itsik Pe'er. Smoothing Nonlinear Variational Objectives with Sequential Monte Carlo. *In International Conference on Learning Representations*, 2019.

RESEARCH AND PROJECTS

Variational Inference in Time Series *Sept. 2018 - Now*
Research Assistant, Columbia University *New York, NY*

- Designed a variational objective based on particle smoothing, and the objective can learn the dynamic system and infer hidden states only based on observations.
- Enabled prediction for various nonlinear chaotic system and reduced the prediction error by 60% than previous methods.
- Appeared at ICLR 2019 workshop: openreview. Full paper in preprint: arxiv.

Accelerate Reinforcement Learning (RL) via Human Brain Signals *Feb. 2019 - Now*
Research Assistant, Columbia University *New York, NY*

- Designed a framework to speed up RL in sparse reward environments by augmenting RL with a efficient policy learned from human feedback, and the feedback was provided through a Brain-Computer Interface.
- Experimented on robot navigation tasks with real human subjects, achieving performance comparable to RL agents learning from human designed rich rewards.
- Submitted to ICRA 2020: arxiv.

Data-driven Estimated Time of Arrival *May. 2018 - Aug. 2018*
Senior Project, Shanghai Jiao Tong University *Shanghai, China*

- Predicted travel time for taxis drivers, achieving prediction error $< 10\%$.
- Matched trajectory GPS with road map using hidden markov model and managed data with PostgresSQL database.

· Applied convolutional neural networks to capturing the spatial-temporal relationship in the traffic conditions.

Reinforcement Learning Verification Challenge *Oct. 2017 - Dec. 2017*
University of Michigan *Ann Arbor, MI*

· Reproduced and verified the paper "Jointly Learning to Construct and Control Agents Using Deep Reinforcement Learning" in ICLR 2018 Verification Challenge.
· Implemented parameter-exploring policy gradient and proximal policy optimization, to jointly optimize the physical design and control policy of the robot.

HONORS AND AWARDS

Jackson and Muriel Lums Scholarship (top 5%) *July. 2016*
Mathematical Contest in Modelling - Meritorious Winner (top 10%) *Jan. 2016*
Kehui Scholarship (top 2%) *Sept. 2014*

SKILLS

Languages Python (TensorFlow), C, C++, PostgresSQL, MatLab