Logan Riggs Smith

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Experience

Jan. 2021 – Present: Participant in AI Safety Camp – Wrote and presented a proposal on making neural networks modular to improve interpretability. Handled logistics and minutes for meetings for our group of six.

- Read existing works in modularity, interpretability, and spectral clustering
- Designed multiple experiments to verify both modularity and improved interpretability
- Reached out and questioned researchers with relevant expertise

May. 2019 – Present: Graduate Research Assistant, Mississippi State University – Coordinated with a group of 4-6 researchers, presenting updates on a weekly basis. Suggested and implemented machine learning experiments using tensorflow. Researched, wrote, and published technical papers.

- Created literature reviews for wireless physical fingerprints, zero-shot learning, and outlier detection
- Coded custom machine learning networks including MLPs, CNNs, and auto-encoders
- Pre-processed wireless signals with normalization, the Fourier transform, and the short-time Fourier transform

Jan. 2021 – May. 2021: Teacher Assistant, Mississippi State University – Assisted undergraduates in their Microprocessor lab. Submitted grades within a few days of student submission. Completed the lab personally the week before students to better help them.

Nov. 2017 – Aug. 2018: Software Developer (co-founder), WISPr Systems – Researched and implemented software solutions to allow drones to capture internet signal strength. Wrote documentation for our software. Created simulated autonomous flights plans and tested in real-world situations.

- Integrated custom web applications with a drone's on-board Raspberry Pi for manual and autonomous flight
- Installed and utilized 3rd party stereo cameras for obstacle avoidance
- Interfaced with the drone's odometry, video, and antenna information to receive live feedback over WiFi

Publications

Smith, L., Smith, N., Kodipaka, S., Dahal, A., Tang, B., Ball, J. E., and Young, M. *Effect of the Short Time Fourier Transform on the Classification of Complex-Valued Mobile Signals* in [Signal Processing, Sensor/Information Fusion, and Target Recognition XXX], 11756, International Society for Optics and Photonics (2021) (accepted)

Smith, N., Smith, L., Kodipaka, S., Dahal, A., Tang, B., Ball, J. E., and Young, M. *Real-Time Location Fingerprinting for Mobile Devices in an Indoor Prison Setting* in [Signal Processing, Sensor/Information Fusion, and Target Recognition XXX], 11756, International Society for Optics and Photonics (2021) (accepted).

Smith, L., Smith, N., Rayborn, D., Tang, B., Ball, J. E., and Young, M. *Identifying unlabeled wifi devices with zero-shot learning* in [Automatic Target Recognition XXX], 11394, 113940R, International Society for Optics and Photonics (2020).

Smith, L., Smith, N., Hopkins, J., Rayborn, D., Ball, J. E., Tang, B., and Young, M.*Classifying wifi" physical fingerprints" using complex deep learning* in [Automatic Target Recognition XXX], 11394, 113940J, International Society for Optics and Photonics (2020).

Oral Presentations

Identifying unlabeled wifi devices with zero-shot learning SPIE defense + Commercial Sensing Digital Forum (24 April 2020)

Effect of the Short Time Fourier Transform on the Classification of Complex-Valued Mobile Signals SPIE defense + Commercial Sensing Digital Forum (Accepted)

Education

MS Computer Engineering, Mississippi State University, 2021, Final Grade: 3.85/4.0

BSc Computer Engineering, Mississippi State University, 2018. Final Grade: 3.68/4.0