Kyle DeProw

Email : kydepro@gmail.com
Website : https://kyle-deprow.github.io

Education

- **Saint Louis University** — St. Louis, MO
  Master of Science in Engineering; GPA: 3.85 — *Jan. 2017 – Dec. 2022*
- **Southern Illinois University of Edwardsville** — Edwardsville, IL
  Bachelor of Science in Mechanical Engineering; GPA: 3.89 — *Aug. 2012 – May 2016*

Experience

- **Boeing Research & Technology** — Hazelwood, MO
  AI/ML Principal Investigator — *Dec 2021. - Present*
  - **Autonomous Perception**: Prototyped Detect and Avoid solutions for Autonomous Aircraft utilizing available perceptual capabilities (IFF, ADSB, Radar, Camera) and varying levels of AI sophistication (traditional, MLP, CNN) to benchmark effectiveness of DNN solutions.
  - **DNN Anomaly Detection**: Pursued research efforts aimed at bolstering platform cybersecurity through Time-series Anomaly Detection utilizing Bayesian DNN structures to detect operational deviations.
  - **Research and Development**: Expanded a limited scope research effort executed solely by myself to leading a team executing on an enterprise-wide ML initiative exploring DNN AD, NLP, Sensor Fusion, and Neurosymbolic AI to meet the needs of several customer programs.
  - **Proposal Writing and Funding Capture**: Utilized AI/ML subject matter expertise to identify opportunities for designing and authoring competitive business discriminators in response to customer project announcements culminating in a total of $17M in captured funding and another $10M in potential future projects.
  - **Mentoring and Knowledge Sharing**: Formally mentored several early-career engineers in ML/AI, Software Development, and Proposal Writing. Currently lead a hands-on, brown bag ML workshop to discuss state-of-the-art, solidify fundamentals, promote cross-team communication, and eliminate knowledge silos amongst my team.
- **Boeing Defense, Space, & Security** — Hazelwood, MO
  Software Engineer — *Feb. 2019 - Dec 2021.*
  - **Autonomy/AI**: Architected and Implemented MDP, A*, DQN, A2C, and TD3 Reinforcement Learning algorithms to solve path-planning and refueling missions and encode this learning into a general solution.
  - **Data Pipelining and Experimentation**: Developed methodologies to extract large-scale data from de-facto Aerospace Sim tool, AFSIM, to enable sophisticated experimentation in custom high-fidelity, robust AI gyms.
  - **Real-time Simulation**: Developed IFF, ILS, and Radar simulation capabilities for real-time, RHEL OS.
- **Saint Louis University** — St. Louis, MO
  Graduate Research Associate — *Jan. 2017 - Feb. 2019*
  - **Academic Research and Publications**: Research grant funded position to lead research relevant to NSF Cyber-Human Systems programs which included fields such as Robotics, AI, and Machine Learning.
  - **Perception Systems**: Computer vision system using Xbox Kinect to implement inverse kinematic solutions that solved operator arm pose angles transposed on a telerobotic arm.
  - **Supervised Learning**: Designed LSTM structures to predict robot payload contents from time-series data.
- **Dynamic Controls** — Maryland Heights, MO
  Controls Engineer — *Jan. 2016 - Sep. 2017*
- **Emerson - White Rodgers** — Ferguson, MO
  Mechanical and Electrical Engineer – Co-op — *Dec. 2014 - Sep. 2015*

Publications

- **A Curved Port Delivery System for Laser Interstitial Thermal Therapy of Brain Tumors**: 2019
- **Design of a Lightweight, Ergonomic Manipulator for Enabling Expressive Gesturing in Telepresence Robots**: 2018
- **Motion and Deformation of a Water Droplet Under the Influence of an Electric Field**: 2014

Programming Skills

- **Languages**: Python, C++, C, Matlab **Technologies**: Tensorflow/Pytorch, Docker, K8s, CMake, Git