Kyle DeProw

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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*
  - **DNN Anomaly Detection**: Pursued research efforts aimed at bolstering platform cybersecurity through Multivariate Time-series Anomaly Detection analysis which utilizes expected behavioral patterns encoded in Bayesian DNN structures, such as modified VAE's, to detect operational deviations while also performing NLP techniques identify events captured in security logs, accomplished through Attention-based Transformer models.
  - **Research and Development**: Expanded a limited scope research effort executed solely by myself to an enterprise-wide ML initiative supporting multiple efforts while leading a team of five engineers with skills varying from Data Science to Software Engineering.
  - **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, primarily DARPA, project announcements to a total of over $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. Led 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**: Designed and developed Monte Carlo Tree Search and A* algorithms for AI Agents operating inside of a custom simulation gym to solve optimal path-planning problems given real-world mission context.
  - **Machine Learning**: Architected and Implemented DQN, A2C, and TD3 Reinforcement Learning algorithms to solve path-planning and refueling missions and encode this learning into a general solution.
- **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.
  - **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

Certifications

- **DevSecOps for Developers**: Saint Louis University
- **Software Engineering and Architecture**: Saint Louis University

Programming Skills

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