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 by detecting operational deviations from expected behavioral patterns encoded in DNN structures such as VAE, GAN, Transformers/LLM, and GNN.
  - **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, proposal requests to a total of over $20M in potential capture events.
- **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 and A2C Reinforcement Learning algorithms to solve path-planning and refueling missions and encode this learning into a general solution.
  - **Constructive Simulation**: Development lead for incorporating maritime simulation capabilities into AFSIM.
  - **Real-time Simulation**: Developed IFF, ILS, and Radar simulation capabilities for real-time, RHEL OS.
  - **DevSecOps and CI/CD**: Implemented containerized solutions for a variety of enterprise use-cases.
- **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

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