

# Liana Rose Tutt

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## EXPERIENCE

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- Medical Device Machine Learning Engineer Intern** May 2024 - Current  
DEKA Research and Development Manchester, NH
- Worked on a team to develop a decoder transformer model for the Twiist insulin pump
  - Improved simulation performance by over 80% in patient outcomes
  - Enhanced the training dataset quality by developing Python scripts to generate counterfactual data
  - Researched alternative RNN models to increase efficiency, selected and implemented an LSTM model
  - Developed with Linux system in Python using packages such as Matplotlib, NumPy, Pandas, PyTorch and used Determined AI for hyperparameter tuning, training, and experiment tracking
- Perception Algorithm Research Intern** October 2023 - May 2024  
DEKA Research and Development Terre Haute, IN
- Investigated perception algorithms for autonomous mobile robot in Python and C++ using sensor data and ROS
  - Implemented GPU (CUDA) accelerated algorithm to improve speed and efficiency of path planning
  - Reported performance of algorithms to stakeholders and recommended selection
- Computer Vision and Software Engineering Intern** December 2021 - December 2022  
Heliponix LLC Evansville, IN
- Led development of image analysis algorithm using a naive Bayes multiclass approach with accurate masking
  - Interpreted and visualized lab data using R and co-developed an R Shiny app for interactive data display from a Snowflake database
- Teaching Assistant** September 2024 - Current  
Rose-Hulman Institute of Technology Terre Haute, IN
- Asked by professors to be their teaching assistant to grade, tutor, and conduct office hours for multiple advanced Computer Science electives including Machine Learning, Image Recognition, and Advanced Databases

## EDUCATION

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- Bachelor of Science in Computer Science, Minor in Artificial Intelligence** May 2025  
**Rose-Hulman Institute of Technology** Terre Haute, IN
- Relevant Coursework: Bio-inspired AI, Machine Learning, Artificial Intelligence, Image Recognition, Deep Learning, Data Mining, Advanced Databases
- Achievements: Dean's List, Rose-Hulman Merit Scholar

## PROJECTS

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- AI Assist for Omniplanner App** | *Python* June 2024 - Current
- Identify optimal LLM and use machine learning techniques to assist users with comprehensive life planning
  - Collaborating with a team of four, leading the design and development of the AI assist, and contributing to backend and frontend development of the entire app
- Reinforcement Learning for Cartpole Problem with Classical ML Techniques** | *Python* April - May 2024
- Designed a system using reinforcement learning to solve the cartpole problem without the use of Neural Networks
  - Experimented with different ML methods such as Q-learning and Proximal Policy Optimization
  - Achieved over 500 balancing steps before failure which was a 400% increase in performance from baseline
- Bone Fracture Image Recognition (Transfer Learning with CNNs)** | *Matlab* July 2023
- Developed an algorithm utilizing transfer learning with CNNs to detect bone fractures from over 3000 images using various image processing techniques such as edge detection, Hough transforms, and K-means processing
  - Achieved 80.8% test accuracy and presented results and ideas on future work and improvements

## SKILLS

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**Programming Languages:** Python, R, SQL, JavaScript, MATLAB, C, C++ (Basic)  
**Libraries and Packages:** PyTorch, Pandas, R Shiny, Scikit-Learn, NumPy, Matplotlib, TensorFlow (Basic)  
**Developer Tools:** Determined AI, Git, Anaconda, Jupyter Notebook/Jupyter Lab, Linux, ImageJ, Apache Kafka, ROS  
**Cloud/Databases:** Snowflake, SQL Server Management Studio, Redis, MongoDB, Neo4j, RethinkDB  
**Miscellaneous:** NVIDIA DLI Certificate for Fundamentals of Data Science with RAPIDS, Japanese (1 year)