# Sanketh Gudapati

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## Education

**Washington University in St. Louis** — St. Louis, MO
*Bachelor of Science in Computer Science and Math* — *Sep. 2021 – Jan. 2025*

- Cumulative GPA: 3.8, Engineering GPA: 3.9
- Dean's List: 2021, 2022, 2023, 2024
- Relevant Coursework: Data Structures and Algorithms, Probability and Statistics, Proof Mathematics, Machine Learning, Data Science, AI, Bayesian Statistics, Stochastic Processes, Natural Language Processing, Computer Vision, Linear Statistical Models, Data Mining, Deep Neural Networks, Analysis of Algorithms, Advanced Computer Vision, Mathematical Finance

## Experience

**Machine Learning Researcher** — Dec. 2022 – Present
*Washington University in St. Louis* — *St. Louis, MO*

- Conducted computer vision research using Python and PyTorch, constructing a Kalman Filter-based tracker for object detection, improving tracking accuracy by 10%
- Currently engaged in a public health project using the Llava vision-language model and CLIP to generate a heatmap of livability scores, using the CVUSA dataset to analyze 10,000 images across various regions of St. Louis.
- Collaborated with PHD researchers to help design experiments, analyze, and present data

**Software Engineer Intern** — June 2023 – Aug. 2023
*Mastercard* — *St.Louis, MO*

- Developed a robust template for deep health checks using Spring Boot, Java, and Maven, enabling easy implementation across 2 Mastercard subteams to monitor system health effectively
- Managed the Mastercard Interface Processor (MIP) virtualization process, optimizing processes by automating over 5 tasks using Jenkins and Ansible
- Parsed service files using Golang to extract key information from Mastercard's Virtual Machines(VM)

**Teaching Assistant** — Jan. 2023 – Present
*Washington University in St. Louis* — *St. Louis, MO*

- Courses: Machine Learning CSE 417T, Data Science CSE 217A
- Led weekly office hours and in class-labs in machine learning and data science, actively managed the course's online Piazza forum, and provided detailed and constructive feedback on assignments and exams for around 80-90 students

## Projects

**Hackathon MasterTree Donation API** | *SpringBoot, API, Java, Maven, Git, Figma, HTML, CSS, Postman, GitHub*

- Collaborated with a team of four to develop a donation round-up Chrome extension API using Donation and Priceless Planet Coalition APIs during the Hack WashU hackathon
- Won **1st place** in the intermediate division and **3rd place overall** in the master division

**Age Prediction from Generated Facial Images Using Deep Learning** | *Python, TensorFlow, Sci-Kit Learn, Jupyter Notebook, P*

- Tuned a deep learning model to estimate ages from stable-diffusion/AI generated facial images, trained on a dataset of 18,889 images
- Utilized the ResNet-18 architecture in PyTorch, achieving a root mean square error (RMSE) of 9.1, demonstrating high accuracy in age prediction

**Kalman Filters Pair Trading Project** | *Finance, Mean Reversion, Trading, Cointegration, Time-Series Analysis, Linear Algebra*

- Implemented a statistical arbitrage trading strategy using Python, focused on pairs trading with the application of the Kalman Filters and cointegration tests to identify and capitalize on market inefficiencies between highly correlated stocks
- Utilized yfinance for data acquisition, statsmodels for econometric analysis, and bayesian optimization for parameter tuning
- Using cointegrated stocks Pepsi and Coco-Cola, increased returns by 22 % over 2 years and achieved a Sharpe Ratio of 1.35

## Technical Skills

**Languages**: Java, Python, R,
**Technologies**: SpringBoot, Maven, NumPy, Pandas, Matplotlib, Seaborn, Sci-Kit, Git, Jupyter Notebook, Google Colab, Keras, Tensorflow, Stable Diffusion, GAN's, Hugging Face, Deep Learning, PyTorch,

## Clubs/Organizations

Quantitative Finance Club, Poker Club, Math Club, Computer Science Club, Chess Club, Running Club