

# Ross Alexander

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## EDUCATION

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### Stanford University

M.S. in Aeronautics & Astronautics, Artificial Intelligence Track      *GPA: 4.1*      June 2021

### Texas A&M University

B.S. in Aerospace Engineering, Honors      *GPA: 4.0*      May 2019

## SKILLS

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- *Languages:* Python, Julia, MATLAB, C++, SQL, HTML/CSS
- *Libraries:* PyTorch, Tensorflow, Scikit-Learn, PySpark, POMDPs.jl

## EXPERIENCE

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### Stanford Intelligent Systems Lab (SISL)

February 2020 – September 2021

#### *Autonomous Driving Research*

- Planning under uncertainty for autonomous driving in urban scenarios with smart infrastructure
- Developed and implemented novel sensor- and decision-fusion algorithm enabling tractable planning that achieves 0% collision rate in high-risk occluded pedestrian scenarios

#### *COVID-19 Policy Research*

- Adaptive control of spread of epidemics using graph-mined contact network models
- Developed end-to-end decision support tool utilizing modified Monte Carlo tree search (MCTS)

### Stanford Pre-Collegiate Studies (SPCS)

June 2020 – August 2021

#### *Course Instructor*

- Developed 80+ hours of undergraduate-level machine learning and data science curriculum
- Lead instructor for 7 two-week courses, taught 100+ students, avg. overall course ratings ~4.6/5.0

### CFD Research Corporation

May 2019 – August 2019

#### *Machine Learning Intern*

- Researched, implemented, and trained deep Gaussian processes (deep GPs) for regression tasks
- Leveraged deep GPs in active learning tasks for ~20% increase in sample efficiency over shallow GPs
- Co-authored research proposals and helped secure contracts totaling \$500K+

## PROJECTS

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- Learning Unregularized Quaternion Knowledge Graph Embeddings: ~8% MRR increase over SOTA
- Active Learning for Efficiently Constructing Surrogate Models: GPs outperform DNNs in active learning
- Randomized Low-Rank Approximation of Kernel Matrices in Gaussian Processes: 2x faster w/ $10^{-15}$  error

## ACHIEVEMENTS

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- Stanford Graduate Fellowship in Science & Engineering: *Top fellowship for incoming STEM Ph.Ds.*
- Texas A&M University President's Endowed Scholar: *Top scholarship for incoming students*
- Charles Hoult Award for Modeling & Simulation: *2017 recipient out of 83 college rocketry teams (IREC)*