# Tianshu Huang

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## Education

- **University of Texas** — Austin, TX
  *Electrical and Computer Engineering (Honors); GPA: 3.94* — *August 2017 - Present*
  - Relevant Courses:
    Introduction to Embedded Systems
    Geometric Foundations of Data Science (Graduate)
    Real Analysis I, II
    Theory of Probability (Graduate)
  - In progress:
    Computer Architecture
    Digital Logic Design
    Linear Signals
    Algorithms

- **Texas A&M University** — College Station, TX
  *Concurrent enrollment while in high school; GPA: 4.0* — *January 2016 - May 2017*
  - Courses: Discrete Mathematics, Linear Algebra, Advanced Calculus I

## Work Experience

- **Test Analysis Systems Consultant** — Fremont, CA
  *SLD Laser* — *August 2018 - Present*
  - Maintain and add new features to data analysis web app created previously
  - Work on proof-of-concept proposal for a new task scheduling system for both computing and fab resources using Celery and RabbitMQ
  - Integrate testing with test data to allow engineers to request test data, receive notifications on completion, and view requested results without leaving the web app

- **Full Stack Developer Intern** — Fremont, CA
  *SLD Laser* — *June 2018 - August 2018*
  - Created complete web app from scratch using Django and D3.js to create interactive visualizations of laser test data consisting of over 23,000 lines of code
  - Integrated tests from multiple stages of production to allow engineers to compare data vertically (along a single device's life cycle) and/or horizontally (between different devices), giving engineers new insights into defects encountered during the manufacturing process
  - Wrote interface using the Django ORM to map legacy databases with greatly varying design and layout without existing documentation of database structure
  - Designed backend authentication and token-based API authentication
  - Support 30 users totalling 200,000 requests per month

## Projects

- **Region V Robotics** — Austin, TX
  *UT IEEE RAS* — *September 2018 - April 2019*
  - Wrote perspective-based Computer Vision algorithm to recognize obstacles and targets and compute their distances
  - Designed autonomous navigation algorithm for multi-robot swarms; team recieved 3rd place
  - Design program architecture, coordinate implementation, and manage review of over 20 developers

- **Fast Random Kernelized Features** — Austin, TX
  *Geometric Foundations of Data Science Final Project* — *December 2018*
  - Implemented Random Fourier Features and Random Binning Features to approximate shift invariant kernels with finite, fixed size feature transforms
  - Designed parallel architecture to run on TACC's stampede2 and lonestar5 supercomputers
  - Adapted Random Fourier Features to run on input spaces images with dimensionality 10 times higher (50x50, RGB) than the previous highest (28x28)
  - Achieved 15% error with under 10 minutes of training

## Skills

- **Languages**: Python, Javascript, C, ARM Assembly, C++, Java, SQL, HTML, CSS, LaTeX, Verilog
- **Libraries and Frameworks**: OpenCV, Django, Celery, D3.js, Node.js, Numpy, SK-Learn
- **Platforms**: Apache, Arduino, RabbitMQ, Git (Github, Self-hosted Gitlab), Subversion, Ubuntu / Ubuntu Server, FreeBSD, Virtualbox, ESXi, MySQL / MariaDB / Sqlite, FreeRadius, Large-Scale Parallel Computing (TACC)
- **Hardware**: Board design (EagleCAD), fabrication (OtherMill), and assembly; CAD (Solidworks, Sketchup); 3D Printing