Yuan Chang

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Education

- **University of California, San Diego** — La Jolla, California
  Master of Science - Computer Science and Engineering; — *Sept 2022 - June 2024*
  Emphasis: *Artificial Intelligence*
- **University of California, Davis** — Davis, California
  Bachelor of Science - Computer Science; GPA: 3.9/4.0 — *Sept 2018 - June 2022*
  Minor: *Mathematics*
  Courses: *Operating Systems, Data Structures, Analysis of Algorithms, Artificial Intelligence, Machine Learning, Scientific Computation, Computer Architecture, Optimization, Number Theory, Modern Algebra*

Skills Summary

- **Languages(Proficient)**: Python, C/C++, LaTeX, MATLAB, R, Bash
- **Languages(Familiar)**: Rust, Swift, Clisp, Prolog, Perl, Java, Maple, RISC-V
- **Libraries**: Scikit, TensorFlow, Keras, Seaborn, pandas, NumPy, SymPy

Internship & Experience

- **UC Davis Applied Mathematics Summer Research** — Remote
  Research Student — *June 2021 - Feb 2022*
  - Study both theoretical Ramsey Theory and computational methods.
  - Modify and write scripts to aid computation.
  - Using Boolean algebra(SAT) to significantly reduce the cost of computation.
  - Research conducted under the supervision of Prof. Jesús De Loera and William Wesley.
- **International Family Union** — Remote
  Teaching Associate (Part-time) — *June 2020 - Jan 2021*
  - Teaching in Computer Science.
  - Designed and taught areas such as Unix/Bash commands, C++, algorithms and abstract data structures.
  - Introduced advanced topics such as dynamic memory management and recursion.

Projects

- **Time Series Analysis on SNP Stock Market(Machine Learning, Data processing, Time Series Models)**: Training polynomial regression and time series models to predict the trend of the SNP stock market. Project collaborated with 6 other fellow CS students. Produced an interactive model using Flask to output market projections. Github Link (2022)
- **Digit Recognition with MNIST Dataset of Handwritten Digits(PCA, Centroid Algorithm)**: Analyze and implement Centroid and PCA algorithms in MATLAB for hand- written digit recognition. Training data set over 60, 000 digits and testing data set over 10, 000. Achieved overall success rate of around 85%. (2022)
- **Computations with Rado numbers and degree of regularity(Automated Reasoning, Theory of Computation, Number Theory, Combinatorics)**: Advancement in terms of Rado Numbers and the degree of regularity. Results collected and formulated into research paper accepted into 2022 ISAAC conference. Co-author with Prof. Jesús De Loera and William Wesley. Github Link (2021)
- **Robotic Arm Project(Algebraic Geometry, Grobner Bases, Automatic Theorem Proving, Kinematic Problem)**: Study of a specialized two segments robotic arm with computational geometric algebra. Analysis of many real life robotic arm problems such as kinematics singularity and reversed kinematics problems. Paper Link (2020)

Publications

- **Rado Numbers and SAT Computations (with J. A. De Loera and W. J. Wesley).**
  Proceedings of the 47th International Symposium on Symbolic and Algebraic Computation (ISSAC 2022). Pages 333-342, available online at https://dl.acm.org/doi/10.1145/3476446.3535494.

Honors and Awards

- UC Davis L&S Dean's honor's list of W2019, F2019, W2020, S2021.
- UC Davis Provost Award and undergraduate scholarship - September, 2018

Volunteer Experience

- **UC Davis Undergraduate Research Conference Presentation** — Davis, California
  Ramsey Theory and Automatic Theorem Proving. Presentation Link. — *Oct 2021*
- **Teaching Assistant for Robotics Class at Davis Senior High** — Davis, California
  Teach essential programming paradigms through the language RobotC. — *Sept 2019 - Dec 2019*