Nathan Theng

Fresno, CA | 559-307-6131 | theng_nathan@mail.fresnostate.edu

EDUCATION

California State University, Fresno – May 2024

- Major: B.Sc. Computer Science
- Smittcamp Family Honor College
- Overall GPA: 3.97
- Dean's Medalist – College of Science and Mathematics
- President's Medalist – Fresno State Graduating Class of 2024

RESEARCH EXPERIENCE

California State University, Fresno

- **Research Assistant | MBG Research Group (Spring 2023 – Present):** Conducted research to detect structural variants in genetic disease from low-quality genomic generational data as part of the Mario Banuelos Research Group utilizing neural networks architectures.
- **Research Assistant | Dr. Athanasios Panagopoulos (Fall 2023):** Conducted research to predict if patients were prone to chronic kidney disease based on their certain laboratory results utilizing four different types of machine learning models in Python: Decision Tree, Random Forest, Support Vector Machine, and Multi-Layer Perceptron. Thesis was presented at the Fall 2023 Undergraduate Thesis Defense Presentation and the Honors Colloquium with the Smittcamp Family Honor College.
- **Research Assistant | Dr. Amith Belman (Fall 2023):** Conducted research to detect different facial emotions from hierarchical features in global and subtle cues via a live-feed webcam. Utilized programming and concepts such as MATLAB, matrices, and eigenvectors and values. Research was presented in the CSCI 158 Research Presentation.

European Conference on Artificial Intelligence

- **Sub-Reviewer (Summer 2024):** Reviewed and provided feedback on various state-of-the-art Large Language Model research papers and discovery for the ECAI 2024 Conference. I was supervised by Program Committee Member: Dr. Athanasio Panagopoulos.

University of California, Santa Barbara

- **Research Assistant | Robust Large Language Model (Spring 2024 – Present):** Assisted in researching large language models and developing them through bootstrapping to improve thier own robustness This is a joint collaboration project with Fresno State, UC Santa Barbara, and Google as a CAHSI-Google IRP Award.

University of California, San Francisco

- **Academic Research Lead | Department of Emergency Medicine (Fall 2021 – Spring 2022):** Enrolled patients into clinical emergency medicine research studies and formulated an enrollment procedure for potential candidates in a suture study complying with the IRB.
- **Summer Biomedical Intern | Department of Endocrinology (Summer 2019):** Analyzed trends and patterns in over 500 patients in the Central Valley to find socioeconomic correlations with diabetes medication within the Central Valley. Attended and taught various classes on the medication trends to residents and medical students.

WORK EXPERIENCE

California State University, Fresno – Fresno, California

- **Academic Mentor | Athletic Department (Fall 2021 – Present):** Mentor student-athletes in various subject classes by coordinating tutoring sessions and designing study curricula to educate, and aid in memory retention, time management, study skills, test-taking preparation.
- **USHER Peer Mentor | Computer Science Department (Fall 2023 – Present):** Mentor first-year computer science students with computer science classes, prerequisites, scheduling, time management, and computational algorithmic thinking to prepare them beyond their studies and into their careers.

- **Cyber-Security Tutor | Computer Science Department (Spring 2023 – Present):** Advise and mentor students within the Intermediate Cyber Security Certificate with in-class activities and programming assignments to better grasp material content.
- **Digital Transformation Intern | Hub of Digital Transformation (Summer 2022):** Architected and shipped artificial intelligence projects for Fresno State by communicating alongside front-end and back-end developers to articulate plans to develop an app that utilized computer vision for campus navigation and to create an autonomous robot for Fresno State services.

Northwestern Mutual – Milwaukee, Wisconsin

- **Security Engineering Intern (Summer 2023):** Designed and implemented technical risk assessment projects for Northwestern Mutual's Engineering Shared Services Department. I collaborated with Application Security Enablement to increase efficiency in evidence collection by 23% by creating an Evidence collecting application that parsed through databases and searched for cloud vulnerabilities. This application is still used today.

JP Morgan Chase – Remote:

- **Back-End Software Virtual Intern (Spring 2022):** Assisted in developing alternative ways to visualize and analyze share price by utilizing JPMorgan Chase Framework in Python to give visual and audio alerts of potential trading opportunities. Edited and tested working models of above functions for JPMorgan Chase Framework.

EYE-Q Vision Care – Fresno California:

- **Clinic Intern (Summer 2020 – Fall 2020):** Obtained patient history during the examination and prepared patients for ocular surgeries. Assisted physicians and staff by streamlining check-in procedures and paperwork.

FELLOWSHIPS

Harvard Business School

- **Summer Venture in Management Program – Fellow (Summer 2023):** Selected to be part of the 2024 cohort of 180 fellows. An educational program designed to give you a taste of a business education. It's geared towards high-potential college sophomores, juniors, and seniors making an impact in their school or community. The four-day residential experience will expose participants to leadership in business and future opportunities

University of California

- **Berkeley Haas School of Business – Thrive Fellow (Fall 2023 – Summer 2024):** Selected to be part of the inaugural cohort consisting of 27 Fellows, including both students and professionals with diverse aspirations. The Haas Thrive Fellowship seeks to incorporate diversity, equity, and inclusion (DE&I) initiatives to cultivate an inclusive environment within MBA programs.
- **Summer Institute of Emerging Managers and Leaders – Scholar (Summer 2024):** An 11 day immersive business and career leadership experience for selected undergraduate students across the nation. Attended workshops and lectures from esteemed faculty members and administrators from all UC business schools.

EXTRACURRICULAR ACTIVITIES

Community Service

- **Milwaukee Robotics Academy (Summer 2023):** Completed over **40 hours** of community service assisting in educating low-income and disadvantaged elementary and middle school students from Milwaukee Wisconsin in robotics software programming.
- **Smittcamp Family Honor College (Fall 2020 – Present):** Completed over **70 hours** of community service including working at Greek Fest, Project Linus, Academic Decathlon, West Coast Relays, Council of Presidential Scholars, the Fresno Center, and other local community organizations in Fresno.
- **Buchanan Badminton (Spring 2016 – Present):** Completed over **300 hours** of community service in guiding high school students through comprehensive instruction and hands-on demonstration and real-time feedback to enhance their understanding and execution of the sport.
- **Fresno Needle Exchange / Fresno Free Clinic (Fall 2021 – Spring 2023):** Completed over **100 hours** of community service to dictate patients' histories and perform medical procedures such as sutures,

stitches, and abscess drainage. Disturbed naloxone and secondary supplies to prevent overdose and disease in low-income areas in Fresno.

- **Kesem at Fresno State (Fall 2021 – Spring 2022):** Completed over 200 hours of community service fostering relationships, leadership training, and team building between new recruits for the organization. I also served as a counselor to provide emotional support and guidance for campers beyond cancer and its effect on their lives.
- **Valley Children Patient Pals (Spring 2019 – Spring 2022):** Completed over 80 hours of community service by delivering empathetic support and companionship to pediatric patients, while also assisting nurses and auxiliary staff with various tasks.

Clubs and Activities

- Volunteer Coordinator and Camp Counselor of Kesem at Fresno State (Summer 2022 - Present)
- President of Fresno State Bulldog Badminton Club (Fall 2021 – Present)
- Scout Player for Fresno State Men Volleyball Club (Fall 2021 – Present)
- Badminton Instructor for Buchanan High School Girls Badminton (Spring 2016 – Present)
- Treasurer and Member of American Medical Student Association (Fall 2021 – Present)
- Treasurer and Member of Tzu Chi International Medical Association (Fall 2021 – Present)
- Robotics Engineering Mentor of Milwaukee Robotics Academy (Summer 2023)
- President of Council of President's Scholar (Fall 2022 – Spring 2023)
- General Member of the Fresno State Honor Council (Fall 2022 – Spring 2023)
- Application Reader for Smittcamp Admission Selection Committee (Spring 2022 – Spring 2023)

Certification and Skills

- Human Subjects Research, Human Subjects Protection Training – CITI
- Biomedical Research Basic Course (CITI)
- Applied AI (Coursera/IBM)
- Machine Learning Specialization (Coursera/Stanford)
- Proficient Programming Languages and Technologies: R, MATLAB, Python, C# ,C++, Java, SQL, HTML, CSS, Javascript, ReactJS, NodeJS, Angular, Assembly, Haskell, MS Office, AWS, PyTorch, Spring Boot, MongoDB, Git

HONORS

President's Medalist | California State University, Fresno (May 2024)

- Awarded to one distinguished individual of the nine Dean's Medalist of the different colleges within Fresno State. One individual is selected out of 6,000 students within all Fresno State graduating class who has shown academic excellence, community involvement, and potential.

Dean's Medalist | California State University, Fresno (May 2024)

- Awarded to one distinguished individual of over 1,000 students within the College of Science and Mathematics that has shown academic excellence, community involvement, and potential.

Smittcamp Family Honors Scholar | California State University, Fresno (August 2020 – Present)

- Awarded annually to 50 incoming freshmen who show exceptional achievements in academic merit, community service, and leadership roles. Provides a full-tuition scholarship for eight semesters at CSU, Fresno.

University of California, Berkeley – Haas Thrive Fellow (September 2023 – Present)

- A highly competitive fellowship program that selects 15 fellows offering immersive business education. Through hands-on experience, fellows master the art of crafting compelling pitches and honing their entrepreneurial acumen in venture creation.

Summer Institute of Emerging Managers and Leaders – Scholar (Summer 2023)

- A selective summer institute that takes 40 scholars to learn from world-class educators from the six University of California graduate schools of business, meet industry leaders from throughout California, participate in dynamic hands-on workshops, and build analytical, technical, and management skills.

President's List (Fall 2020 – Spring 2022, Spring 2023 – Fall 2023)

- Achievement is given to undergraduate students enrolled in at least 12 units during a regular matriculated term earning a 4.0 GPA for the term.

Dean's List (Fall 2022)

- Achievement is given to undergraduate students enrolled in at least 12 units during a regular matriculated term earning a 3.5 GPA for the term.

SCHOLARSHIPS

Recipient – Presidential Honor Scholarship (Fall 2020 – Present)

- Competitive full tuition scholarship for eight semesters awarded to scholars of the Smittcamp Family Honor College.

Recipient – Dr. Lyman H. Heine and Ardis M. Heine Scholarship (Fall 2023)

- Scholarship awarded to deserving students participating in the London Study Abroad Program through the College of Arts and Humanities.

Recipient – Lewis and Virginia Eaton Pre-Med Scholarship (Fall 2023)

- Scholarship awarded to deserving students who show promise in a career in medicine and healthcare based on merits

Recipient – Douglas Klotz Memorial Scholarship (Fall 2022

- Scholarship awarded to a deserving student within the Computer Science Department with merits in industry and research.

Recipient – Alfred & Krommer Scholarship (Fall 2021 – Spring 2022)

- Scholarship awarded to a deserving scholar based on merit and leadership within the Smittcamp Family Honor College.

Recipient – Ed & Ann Hildebrand Scholarship (Fall 2020 – Spring 2021)

- Scholarship awarded to a deserving scholar based on merit and leadership within the Smittcamp Family Honor College.

Semi-Finalist – Fulbright Greece Fellowship (Spring 2024)

- Advanced to the semi-finalist stage and currently in the process of review for the finalist position for the prestigious Fulbright Greece program to research new unsupervised learning methodologies to identify patterns in medical errors under the supervision of the University of Thessaly.

Semi-Finalist – Rhodes Scholarship (Fall 2023)

- Reach the semi-finalist stage for the prestigious Rhodes Scholarship for a full-ride doctoral degree at Oxford University.

Semi-Finalist – Marshall Scholarship (Fall 2023)

- Reach the semi-finalist stage for the prestigious Marshall Scholarship for a full-ride master's degree at Oxford University and Imperial College London.

Semi-Finalist – McCall MacBain Scholarship (Fall 2023)

- Reach the semi-finalist stage for the prestigious McCall MacBain Scholarship for a full-ride master's degree at McGill University.

PROJECTS/PUBLICATIONS

Deep Learning Architectures to Predict Structural Variants: Created and implemented convolutional neural networks and transformer architecture using PyTorch to predict structural variants (SVs) within an individual's genome. This project utilized low-quality observation signal data from nine related family members that were transformed into a 3x3 image and fed through the architecture. The results indicate 67.87% accuracy. The abstract is under review for the 45th Central California Research Symposium. (Research Advisor: Dr. Mario Banuelos, Department of Mathematics)

Supervised Learning and Deep Learning to Model Chronic Kidney Disease: Proposed and implemented four supervised learning classification models, including one deep learning model (Decision Tree, Random Forest, Support Vector Machine, and Multi-Layer Perceptron) to predict if an individual has chronic kidney disease based on a dataset with 25 different features. The Multi-Layer Perceptron model had the highest accuracy of 96.6% and the Decision Tree model had the lowest with 92.6%. The abstract is under review for the Fourth Computer Science Conference for CSU Undergraduates. (Research Advisor: Dr. Athanasios Panagopoulos, Department of Computer Science)

Neural Network Approach for Facial Emotion Recognition: Implemented small and large convolutional neural networks within MATLAB to detect eight different facial emotion labels which are trained on the CKPLUS and Natural Human Face Image for Emotion Recognition dataset. Based on hierarchical features in global and subtle cues, the model was tested with live-feed images from a computer web camera. The results indicated 44.34% and 49.23% accuracy for the small and large networks respectively. The abstract is under review for the Fourth Computer Science Conference for CSU Undergraduates. (Research Advisor: Dr. Amith Belman, Department of Computer Science)

Client Attorney Recommendation Modeling: Created a recommendation model to match clients and attorneys that takes in an input question and generates a list of 15 attorneys across the country based on term

frequency vectors, attorney's experience, and familiarity category in Python using Pandas. (1st place in the Central Valley DataFest Competition).

Trends in Diabetes Medication in the Central Valley: Researched trends in diabetes medication in the Central Valley. By independently obtaining datasets from various clinics, Discovered correlations between sulfonylurea prescription (a riskier and less expensive medication) and low-income families as a cost-efficient compromise. Presented poster and slides at UCSF 31st Annual Biomedical Summer Intern Symposium.