Charley Yejia Zhang

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PROFESSIONAL SUMMARY

- 5th year PhD student performing interdisciplinary machine learning research with a focus on biomedical imaging & computer vision. Projects involve achieving state-of-the-art performances in limited annotation settings on many real-world tasks (e.g., anatomical structure segmentation, insect tracking, automated diagnostics).
- Effective agile software developer with industry internship experience contributing to internal production systems, and over 8 years of coding projects for research, teaching, & clubs.
- Cogent planner and team manager highlighted by over $50k raised by a personally founded non-profit to support underprivileged students in rural China, a 2021 seat on Notre Dame's Graduate Student Board, top class ratings as head TA for 2 semesters, and multiple fruitful research collaborations across 6 institutions & 3 countries.

EDUCATION

NOTRE DAME, IN AUG 2018 – PRESENT EXPECTED DEC 2023	**University of Notre Dame** *Doctor of Philosophy, Computer Science and Engineering (CSE)* GPA 3.96/4.0, GRE V160/170 Q170/170 W5.5/6 Doctoral Advisor Dr. Danny Chen
LA JOLLA, CA SEP 2013 – DEC 2017	**University of California, San Diego (UCSD)** *Bachelor of Science, Computer Engineering* with a Machine Learning Specialization GPA 3.61/4.0, SAT M780/800 R790/800 W800/800

EXPERIENCE

NOTRE DAME, IN DEC 2018 – PRESENT	**University of Notre Dame** *Graduate Research Assistant, Department of Computer Science and Engineering* • Research deep learning & computer vision methods to address high annotation costs in biomedical image analysis, computer-aided diagnostics, and computational biomedicine. • Developed 2 approaches to improve model feature learning without labels for more effective medical image analysis (e.g., skin lesion recognition, heart MRI segmentation) using self-supervised techniques [both published in BIBM'2022, 20% acceptance rate]. • Designed 2 state-of-the-art machine learning frameworks for cell segmentation with limited data constraints for intercellular calcium signaling [published in ISBI'2018] and human sperm morphology analysis [published in ISBI'2022]. • Collaborated with Penn State's and University of Regensburg's Life Sciences departments to create novel deep-learning-based tracking algorithms for over 50TB of raw insect videos for disease dynamics and interactive behavior analysis; currently a journal paper under review and another to be submitted late 2022.
NOTRE DAME, IN AUG 2018 – MAY 2019	**University of Notre Dame** *Head Teaching Assistant, Department of Computer Science and Engineering* • Trained & coordinated grad & undergrad TAs, gave lectures, held office hours & discussion sessions, and timely scored assignments & exams for 2 semesters of "Theory of Computing." Top 10% in computer science composite class ratings.
SANTA CLARA, CA SUMMER 2016	**Huawei Technologies Co.** *Software Engineering Intern* • Programmed a Java application that processes JVM run-time data to recognize memory leak sources; was integrated into internal hardware-testing systems. • Developed a program that reads large CPU dump files, analyzes individual thread data, and predicts future thread resource usage. New predictor was 80% faster, and 50% more accurate than the previous system.

SKILLS

Programming. *Proficient*: Python; *Intermediate*: Java, C/C++, Matlab, Bash.
Packages. Pytorch, TensorFlow, Scikit-Learn, OpenCV, NumPy, SciPy, Pandas, Matplotlib, Jupyter.
Tools. Git/Github, LaTeX, Adobe Illustrator, FIJI/ImageJ, 3D Slicer, Weights & Biases.

FELLOWSHIPS AND HONORS

AUG 2018 – AUG 2023	**Deans' Fellowship**. 5-year full funding awarded to one Notre Dame CSE student per year.
JUL 2018	**Founded Child Aid Nonprofit & Raised $50k**. Fund education for disadvantaged children.
SEP 2013 – DEC 2017	**7x Provost Honors**. Awarded by Warren College at UCSD.
MAR 2013	**Intel Science Talent Search**. National Semifinalist.