

# Charley Yeja 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	<b>University of Notre Dame</b> <i>Doctor of Philosophy, Computer Science and Engineering (CSE)</i> GPA 3.96/4.0, GRE V160/170 Q170/170 W5.5/6 Doctoral Advisor <a href="#">Dr. Danny Chen</a>
LA JOLLA, CA SEP 2013 – DEC 2017	<b>University of California, San Diego (UCSD)</b> <i>Bachelor of Science, Computer Engineering with a Machine Learning Specialization</i> GPA 3.61/4.0, SAT M780/800 R790/800 W800/800

## EXPERIENCE

NOTRE DAME, IN DEC 2018 – PRESENT	<b>University of Notre Dame</b> <i>Graduate Research Assistant, Department of Computer Science and Engineering</i> <ul style="list-style-type: none"><li>• Research deep learning &amp; computer vision methods to address high annotation costs in biomedical image analysis, computer-aided diagnostics, and computational biomedicine.</li><li>• 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].</li><li>• 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].</li><li>• 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.</li></ul>
NOTRE DAME, IN AUG 2018 – MAY 2019	<b>University of Notre Dame</b> <i>Head Teaching Assistant, Department of Computer Science and Engineering</i> <ul style="list-style-type: none"><li>• Trained &amp; coordinated grad &amp; undergrad TAs, gave lectures, held office hours &amp; discussion sessions, and timely scored assignments &amp; exams for 2 semesters of "Theory of Computing." Top 10% in computer science composite class ratings.</li></ul>
SANTA CLARA, CA SUMMER 2016	<b>Huawei Technologies Co.</b> <i>Software Engineering Intern</i> <ul style="list-style-type: none"><li>• Programmed a Java application that processes JVM run-time data to recognize memory leak sources; was integrated into internal hardware-testing systems.</li><li>• 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.</li></ul>

## SKILLS

**Programming.** *Proficient:* Python; *Intermediate:* Java, C/C++, Matlab, Bash.

**Packages.** Pytorch, TensorFlow, Scikit-Learn, OpenCV, NumPy, SciPy, Pandas, Matplotlib, Jupyter.

**Tools.** Git/Github, L<sup>A</sup>T<sub>E</sub>X, Adobe Illustrator, FIJI/ImageJ, 3D Slicer, Weights & Biases.

## FELLOWSHIPS AND HONORS

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