Oras Phongpanangam — Cirriculum Vitae

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Education

Santa Clara University, *B.S. in Computer Science, Mathematics (Double Major)*
GPA: 3.71 — September 2016 - July 2019
Santa Clara, CA, USA

Work and Research Experience

Yannix, *R&D Software Engineer* — November 2022 - November 2023
Bangkok, Thailand

Conceptualized and spearheaded development of a novel anamorphic lens aberration simulation framework, incorporating theoretical optics principles to model anisotropic distortion through Monte Carlo integration and Seidel aberration theory. This research established foundational methodology for photorealistic anamorphic bokeh synthesis in VFX applications. Additionally, conducted optimization research on match-moving technology utilizing Bayesian statistical methods. Systematically evaluated research opportunities through structured interviews across multiple departments, resulting in two executive-approved proposals

Tesla, *Autopilot Simulation Data Synthesis Engineer* — October 2021 - June 2022
Palo Alto, CA, USA

Independently implemented a novel framework for autopilot AI training data synthesis, processing point clouds, voxels, and video data for neural network training. Through systematic analysis of existing pipelines, designed and engineered a streamlined architecture that emphasized intuitive usage, collaborative development, and code reusability. The framework was subsequently adopted as the organizational standard for simulation data generation.

unspun, *Computational Geometry Software Engineer* — October 2019 - July 2021
San Francisco, CA, USA

Pioneered a novel machine learning system for automated garment pattern generation from 3D body scans. Implemented statistical shape-space models of pants patterns to correlate anthropometric measurements with pattern shapes. Engineered an optimization framework, utilizing custom Python-based geometry processing kernels and Scipy's constrained optimization toolbox, to ensure pattern sewability and seam compatibility. My contribution, for which I am a named patent inventor, achieved 90% customer fit satisfaction and reduced manual intervention by 50%, establishing a new paradigm for unspun's custom garment manufacturing.

Santa Clara University, *Research Assistant*

"Higher-Dimensional Geometry" — April 2018 - September 2019

Investigated combiniatorial properties of a polytope of the Cartan 3-manifold and visualized it with projective techniques. Under the mentorship of Dr. Thomas Banchoff, studied symbolic representations of higher-dimensional geometries and developed a Unity-based VR tools for four-dimensional geometric visualization.

"Topic Modeling for Crises Detection" — July 2017 - February 2018

Implemented latent Dirichlet allocation-based topic modeling for crisis detection in social media data. Developed evaluation metrics and visualization methodologies for model assessment.

Publications, Patents, Conferences, and Academic Workshops

MANUFACTURING WOVEN TEXTILE PRODUCTS ON DEMAND
Patent (application pending) | unspun filed January 2023
https://patentcenter.uspto.gov/applications/PCT%2FUS23%2F11979
Patent inventor for an innovative process enabling on-demand production of custom-fitted garments based on 3D body scan parameters, currently in international search report phase. The methodology presents a novel paradigm for waste reduction and inventory optimization in textile manufacturing.

Bezier Curve with SciPy
Talk | PyBay 2021 October 2021
https://sessionize.com/s/oras-phongpanangam/bezier-curve-with-scipy/43793
Presented technical lecture on SciPy's BPoly implementation for Bezier curve generation, elucidating mathematical foundations and practical applications. Slides available here. Implementation available here.

Exploring Topic Models on Short Texts: A Case Study with Crisis Data
Publication | IEEE IRC 2018 published January 2018
https://ieeexplore.ieee.org/abstract/document/8329942/
Authored and presented research on topic modeling applications in crisis-related social media analysis. Successfully secured departmental funding for participating in conference, where I was one of only two undergraduate presenters.

Game Developers Conference 2022
Attendance March 2022
Represented Tesla in evaluating state-of-the-art game development technologies for potential adaptation in autopilot simulation systems.

Summer School on Theoretical Physics: Quantum Information and Quantum Computation
Academic Workshop Participation
King Mongkut's University of Technology Thonburi June 2017
Participated in graduate-level quantum computing workshop covering quantum mechanical foundations (Schrödinger equation, Bra-Ket formalism) and advanced computational theory (qubit operations, quantum gates, Shor's algorithm, quantum teleportation protocols).

Summer School on Theoretical Physics: Path Integral
Academic Workshop Participation
King Mongkut's University of Technology Thonburi June 2016
Participated in graduate-level quantum mechanics workshop covering foundational theory (Schrödinger equation, Bra-Ket formalism, tunneling phenomena) and advanced interpretational frameworks (many-worlds interpretation, Feynman path integral formulation).

Teaching Experience

JavaScript for Blind People, *Teaching Programmer* July 2018 - November 2018
Father Ray Foundation, Pattaya, Thailand

Co-developed and delivered a two-week JavaScript programming curriculum for >20 visually impaired adult learners and secondary school students in Thailand. Engineered accessibility-first educational tools, including tactile Rubik's cubes and screen reader-optimized documentation. Served as primary cultural liaison and interpreter between American instructors and Thai students, facilitating cross-cultural communication and technical instruction. The initiative expanded career opportunities for disabled people in technology sectors while empowering participants to contribute to accessible web

development. This experience gave me much appreciation to the benefit of visual aids in computer science education, while also challenged me to teach in new ways I never tried before.

Drahmann Tutoring Center, *Tutor* April 2017 - March 2019
Santa Clara University, Santa Clara, CA, USA

Provided undergraduate guidance and tutoring in mathematics, computer science, and physics, covering diverse topics including calculus, linear algebra, data structures, algorithms, Newtonian mechanics, and fluids dynamics. Tailored explanations to the unique learning styles of diverse students including visual aids via live-plotting.

CSCI183: Data Science, *Teaching Assistant* April 2017 - June 2017
Santa Clara University, Santa Clara, CA, USA

Created step-by-step documentation for virtual machine setup and configuration, standardizing computational environments across the class. Managed ongoing assessment of student assignments and provided technical consultation. Advocated for a student by conducting rigorous code analysis to exonerate them from incorrect academic misconduct allegations.

Remedial Mathematics, *Instructor, Curriculum Designer* May 2016 - June 2016
King Mongkut University of Technology Thonburi, Bangkok, Thailand

Developed and delivered an intensive three-week remedial mathematics course for incoming undergraduate freshman students. Facilitated dual cohorts of 15 participants each, delivering comprehensive instruction in mathematical concepts including analytical geometry, differential calculus, and trigonometry. Emphasized conceptual understanding, employing visual aids and physical props to deliver my lessons.

"GoGoBoard" for STEM Classrooms, *Assistant Instructor* January 2016
Chiang Mai, Thailand

Co-instructed in a Chiang Mai University-Stanford University partnership program, training 20 in-service teachers in providing STEM education using Scratch and GoGoBoard microcontrollers. The initiative aimed to integrate hands-on computing experiences into K-12 STEM education, enabling teachers to design interactive learning activities for their students. Provided targeted support in computational thinking and programming concepts

Awards and Societies

Membership, Mathematical Association of America (MAA) 2018-2019

Membership, Pi Mu Epsilon (ΠΜΕ) Mathematical Society 2019-Present

2nd place, BroncoHack 2019 March 2019
Major League Hacking

Net Impact Award, BroncoHack 2018 March 2018
Major League Hacking

Conference travel funds January 2018
Department of Mathematics and Computer Science, Santa Clara University
Awarded for IEEE IRC 2018 presentation

George W. Evans II Memorial Prize May 2017
Department of Mathematics and Computer Science, Santa Clara University
Awarded for third place in intra-institutional Putnam examination score

Distinguished First Year Student May 2017
Department of Mathematics and Computer Science, Santa Clara University

Dean's Scholarship 2016-2019
Santa Clara University

Skills

Programming: Python, C++, JavaScript, LaTeX

Technologies: PyTorch, Numpy, Taichi, Matplotlib, Jupyter, Svelte, CSS

Electronics: Arduino, ESP32

Tools: UNIX/Linux, Audacity, Photoshop

Languages: English, Thai, Japanese