IVAN FERDO JAYAPURNA

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EDUCATION

University of California, Berkeley   **GPA: 3.63**

B.A. in Computer Science & B.S. in Chemical Engineering   Aug 2015 – May 2019

RESEARCH & WORK EXPERIENCE

SWARM Lab (Pister Group) | Berkeley, CA

Robotics Researcher   Jun 2018 - Present

- Developing networking algorithms by building a mesh-networked, micro-robot swarm simulator.
- Implementing a low-power convolutional neural network for object detection and classification on a RaspberryPi RC car with TensorFlow & SqueezeDet, to autonomously drive indoors.

Ting Xu Group | Berkeley, CA

Materials Researcher & Research Software Developer   Dec 2016 - Present

- Developing software tools to streamline internal workflow, such as a block copolymer synthesis planner, Monte Carlo polymer growth simulator & protein image analyzer (*publication pending)*.
- Invented a novel block copolymer for gas barrier material applications (*publication pending*).
- Designed and synthesized 30+ block copolymers using RAFT polymerization techniques
- Characterized block copolymer composition and self-assembling architectures (with nanoparticles) using instruments inclusive of NMR, GPC/SEC, DLS, DSC, AFM, TEM & GISAXS.

Visolis | Berkeley, CA

Software Engineer Intern   Dec 2017 - Jul 2018

- Created a data-driven biochemical synthesis tool from project inception to a prototype of 500,000+ unique, computationally predicted pathways.
- Scraped 1,000,000+ records from literature to populate databases and create traversal heuristics.
- Saved $10,000+/year by building a text-to-SQL parser-scraper, for a comprehensive enzyme repository.

Wristband International | Bangkok, Thailand

Cofounder   Dec 2012 - Jan 2015

- Founded the largest online custom wristband business in Bangkok, growing to 100,000+ Facebook likes.
- Managed a sales team of 50+ people & sold over 100,000+ silicone wristbands over 2 years.
- Negotiated international supplier partnerships and deals with local retailers & department store chains.

LEADERSHIP

American Institute of Chemical Engineers

External Vice President   Apr 2017 - Apr 2018

- Increased corporate funding by 110% by crafting a new sponsorship package and outreach strategy.
- Led a team of 12 to organize 10+ corporate info sessions with 30-70 attendance and 3 formal networking events with multinationals and startups.

Vice President of Finance   Apr 2016 – Apr 2017

- Oversaw a committee of 5 to manage all financial transactions, corporate sponsorships, and a $20,000+ budget for 2016-17.

Chec Consulting

Cofounder & Consultant   Jul 2017 - Aug 2018

- Founded the organization with a team of 6; managed recruiting and team structuring.
- Proposed a new device design for a biomedical device startup by modelling fluid flow and pathogen capture rate for their novel microfluidic device.

PROJECTS

Artistic Style Transfer for Images, Video and 360 Videos

- Working on a series of creative, computationally generated art projects. The first project uses python and TensorFlow to implement neural style transfer for 360 Videos to generate compelling, visual experiences.

Chemical Description Classification

- Used natural language processing to classify fuzzy chemical descriptions, synonyms and spelling differences with unique identifiers, allowing for subsequent data aggregation and analysis.

Polymer Science Research Toolkit (Web App)

- Building A Flask & Heroku Web App containing tools for polymer scientists written in Python/JS. Implemented accounts, login-logout, database and download features; soon to be open-source.

Rigid Body Interaction Simulator

- Created a C++/OpenGL based, real-time model of physical interactions between rigid bodies with GUI and shading. Utilized Forward Euler to simulate motion, Discrete Element Method to model collisions, and a spatial map data structure to accelerate collision checking; Final demo simulates 200 mixed shapes colliding.

SKILLS & INTERESTS

Languages: English, Indonesian, Chinese

Technical: Python, Java, C++, C, JavaScript, MATLAB

Software Tools: Bash & Shell Scripting, SQL (Postgres), NoSQL (mongoDB), GraphDB (Neo4j), Git, Pandas, SciPy, OpenCV, TensorFlow, PyTorch, NLTK, BeautifulSoup, Flask, Heroku, OpenGL, KNIME (data analytics workflow), Gazebo (physics simulator), ROS (robot OS), Raspberry Pi, Adobe Photoshop & Illustrator, COMSOL

Research Interests: Computational Materials (with focus on Soft Materials), Cleantech & Renewable Energy, Machine Learning, Computer Vision, Robotics & Automation, Polymers, Biotech, Computationally Generated Art