Padmanabhan Krishnamurthy

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EDUCATION

Columbia University New York, NY
M.S. in Computer Science, GPA: 4.04 Dec 2022

- Thesis track - Advised by Prof. Lydia Chilton, research centered around Multilingual Speech Synthesis
- Relevant Courses: Databases, Deep Learning for Computer Vision, Artificial Intelligence, Algorithms

Hong Kong University of Science and Technology (HKUST) Hong Kong
B.S. in Computer Science, GPA: 3.62, First Class Honours May 2021

- Relevant Courses: Data Visualization, Search Engines, Natural Language Processing, Undergraduate Research (Deep Learning, x3)
- Honors: Outstanding Students' Award, President's Cup, Best Final Year Project Award, Dean's List, Academic Excellence Award, Reaching Out Award, Talent Development Scholarship, hackUST 2018 Champion

WORK EXPERIENCE

Interaction Lab, University of Southern California Los Angeles, CA
Visiting Researcher Jun 2020 – Jun 2021

- Investigated deep learning approaches for overlap-aware infant-mother speaker diarization, attaining 62% purity-coverage F1 scores and 80% identification error rates on data sourced from the Childrens Hospital of LA (CHLA)
- Utilized TensorFlow to construct a siamese network to model infant and mother voiceprints from 200ms micro-utterances
- Research is part of an interdisciplinary study conducted by the Lab in collaboration with CHLA to speed up manual clinical analysis of infant-mother synchrony and identify toxic stressors in infants

Helen - AI + Accessibility Startup New York, NY
Co-founder and Co-Creator Apr 2019 - Present

- Outlined and devised Helen - a patent-pending wearable camera and iOS app for AI-driven lipreading constructed using RaspberryPi, TensorFlow, Swift, AWS
- Wrote custom implementations of DeepMind's LipNet and Visual-to-Phoneme models to obtain ~80% word accuracy and ~4s latency on the GRID dataset
- Received 8 international awards including : HKUST President's Cup, Institute of Engineering and Technology (IET) Present Around the World (PATW) Global Winner, Invited Speaker at Re-Work Applied AI Summit, James Dyson Award Runners Up, Offered Incubation by HKUST Entrepreneurship Cell

Uber Hong Kong
Driver Operations Intern, Software Engineering Intern Jun 2018 - Dec 2018

- Awarded internship after winning Asia's largest Hackathon, hackUST (only freshman winner across 80+ teams)
- Engineered multi-lingual NLP networks for driver quality control with ~90% accuracy and interactive GUI
- Led a 3-person team to build automation suites to speed up workflows by 99% and increase processable data by 48%
- Created AWS APIs for launching Uber's Momentum Card driver loyalty program in Hong Kong

TECHNICAL SKILLS

- Languages: Python, C/C++/C#, Java, HTML5/CSS, Swift, React Native
- Frameworks: TensorFlow, PyTorch, Keras, Caffe, OpenCV, scikit-learn
- Other Tools: Github, AWS EC2, AWS Lambda, AWS S3, AWS DynamoDB, Google Cloud Services

PROJECTS

Sound of Silence - Lip-to-Speech Synthesis on Smartphones Jun 2020 - May 2021

- Developed a proprietary deep learning model, SoSNET, to generate intelligible speech from silent lip movements, achieving STOI of 0.43 and PESQ of 1.25
- Developed cross-platform React Native partner apps and achieved latency of ~7 seconds for a 3-second input video
- Awarded HKUST Best Final Year Project award (1 among 3 awardees from 105 entries)

SoccerMetrics - Dynamic Data Visualization for Soccer Performance Metrics Feb 2020 - May 2020

- Built open-source interactive data visualization dashboard to visualize individual and collective playing styles derived from 8 years of data and 20+ match event categories
- Led (jointly) writing of paper accepted to 2021 IEEE 6th International Conference for Convergence in Technology (I2CT)

Clearbot - AI-Driven Autonomous Ocean Cleaning Robots Jun 2019 - Oct 2019

- Created deep-learning marine waste detection systems to recognize ocean garbage with 83% accuracy and 25 fps detection speed
- Represented Hong Kong and China (sole member of the team from HKUST) at Global Grand Challenges Summit (GGCS) student innovation challenge for social impact
- Presented Clearbot on behalf of team at GGCS, was declared runners-up of 15 international teams and felicitated by Princess Anne