Vaibhav **Kulkarni**

PhD-Information Systems · Software Engineer (Data Science & Privacy)

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Work Experience

GenLots SA
Lausanne, Switzerland

Software Engineer | Research & Development Lead
Sept. 2019 - Present

- Developed the backend infrastructure, optimized & added features to the core algorithm
- Integrated client data pipelines with GenLots infrastructure, designed & developed KPI analytics
- Lead R&D activities, set up collaborations with renowned Swiss research labs & industries

Distributed Object Programming Lab, HEC-Lausanne
Lausanne, Switzerland

Research Scientist
Nov. 2015 - Aug. 2019

- Managed & directed partnership with Transports publics Lausannois, provided analysis & recommendations to curb ticket-free riding
- Led 3 large-scale data collection campaigns, generated 700,00 CHF+ in project funding, recruited 100+ project participants & assistants
- Initiated & supervised collaborations with AI labs located at Columbia University, New York & Dublin Institute of Technology, Ireland

CloudCeption
Berlin, Germany

Co-founder & Systems Architect
Jan. 2014 - Aug. 2015

- Developed & implemented a comprehensive cloud infrastructure for testing Internet of Things products
- Managed project deliverables, assembled & steered a multi-national team, won Future Cloud Challenge'14
- Deployed prototypes at ETH Zürich & TU Berlin, conducted large-scale surveys, captured performance metrics

BOLT IoT
Goa, India

Embedded Systems Engineer
Aug. 2011 - Aug. 2013

- Conceptualized, designed & developed prototypes of the Robotics & IoT embedded platforms
- Led the customer support & troubleshoot team, trained 1000+ professionals, assisted talent hiring

Education

HEC-Lausanne (University of Lausanne)
Lausanne, Switzerland

PhD, Information Systems/Computer Science
Nov. 2015 - Sept. 2019

- Thesis: Modeling, Predicting & Capturing Human Mobility
- Research Areas: Machine Learning, Data Privacy, Geographic Information Systems, Statistics
- Certifications: Machine Learning, Information Security, Cloud Services, Privacy Regulations

Technische Universiteit Eindhoven
Eindhoven, Netherlands

MS, Embedded Systems (Graduated with Cum Laude)
2014-2015

- Specialization in Computer Architectures & System Infrastructure
- Master thesis at **ETH Zürich**: Facilitating Wireless Coexistence Research

Technische Universität Berlin
Berlin, Germany

MS, Information & Communication Technology (Graduated with Honors)
2013-2014

- Completed a Minor degree in Innovation, Business & Entrepreneurshi (Thesis: IoT product Business Plan)
- Specialization: Internet of Things, Wireless Network Architectures & Infrastructures

Goa College of Engineering, Goa University
Goa, India

BS, Electronics & Communication Engineering (Graduated with Honors)
2008-2012

- Specialization: Robotics & Internet of Things
- Thesis: Multi-Mobile Robot Communication System - Received 20+ national awards, Applied Materials honorary award

Skills

- Programming, Scripting, Databases (Python, JavaScript, C/C++, Bash, SQL, regex) • Data Science Stack (NumPy, SciPy, Pandas)
- Applied ML (Scikit-learn, Tensorflow, Keras) • Data visualization (Tableau, matplotlib, D3)
- Cloud computing platforms: Amazon web services • Google cloud platform • Apache Hadoop & Spark
- Spanning Microservices with Docker, Flask, React & RabbitMQ • Version control tools (GIT, SVN), CD/CI toolset
- Languages: English (Fluent), French (B1), German (A2), Hindi (Fluent), Marathi & Konkani (Native)

Selected Publications

- Generative Models for Simulating Mobility Trajectories
  V. Kulkarni, N. Tagasovska, T. Vatter, B. Garbinato (collaboration with Statistics group at Columbia University)
  Impact: Advanced synthetic mobility-data generation for autonomous driving, urban planning & traffic prediction
  Neural Information Processing Systems (top-tier machine learning conference), Montreal Canada (Dec. 2018)
- Mobility modeling on smartphones to achieve privacy by design
  V. Kulkarni, A. Moro, B. Chapuis, B. Garbinato
  Impact: Facilitated federated learning by enabling computation on geolocation data on smartphones
  IEEE Conference on Trust, Security and Privacy (IEEE flagship security conference), New York USA (Aug. 2018)
- Breadcrumbs: A Rich Mobility Dataset with Point-of-Interest Annotations
  A. Moro, V. Kulkarni, PA Ghiringhelli, B. Chapuis, K. Huguenin, B. Garbinato (collaboration with Information Security Lab)
  Impact: Gathered a large scale geospatial dataset that will facilitate GIS & location privacy research
  Conference on Geographic Information Systems (top tier GIS conference), Chicago USA (Nov. 2019)
- Information Disclosure in Location-based Services: An Extended Privacy Calculus Model
  D. Naous, V. Kulkarni, C. Legner, B. Garbinato (collaboration with BISA Lab)
  Impact: Aided mobile application developers to integrate user information disclosure behaviors in application design
  International Conference on Information Systems (Premier Information Systems Conference), Munich Germany (Dec. 2019)
- Extracting Hotspots without A-priori by Enabling Signal Processing over Geospatial Data
  V. Kulkarni, A. Moro, B. Chapuis, B. Garbinato
  Impact: Advanced the benchmark on gathering mobility insights from large-scale geolocation datasets
  Conference on Geographic Information Systems (top tier GIS conference), Los Angeles USA (Nov. 2017)
- Privacy-Preserving Location-Based Services by using Intel SGX
  V. Kulkarni, B. Chapuis, B. Garbinato
  Impact: Designed & implemented secure service architecture offering high service utility while preserving privacy
  Conference on Embedded Networked Sensor Systems (top tier IoT conference), Delft Netherlands (Nov. 2017)
- On the inability of Markov models to capture criticality in human mobility
  V. Kulkarni, A. Mahalunkar, B. Garbinato, JD Kelleher (collaboration with Ml group at Dublin Institute of Tech.)
  Impact: Empirically disproved a long-help assumption that human mobility is Markovian
  International Conference on Artificial Neural Networks'2019 & Entropy 2019 (Statistical Physics Journal)

Program Committees & Internships

- Served on the external reviewer committee of International Conference on Information Systems (Data Privacy Track) - Aug. 2018
  Duties: Reviewing research papers, submitting feedback to authors, communicating with program committee chairs
- Cognizant Technology Solutions - Campus Ambassador - Feb. 2012
  Represented Cognizant Technology Solutions on the university campus & supported job-fair activities
- Interned at National Institute of Oceanography - May. 2009 - Sept. 2009
  Project: Autonomous Underwater Vehicle, aided in conducting experiments & collecting feedback

Grants & Awards

- HEC-Research Grant for Independent Doctoral Research - Dec. 2017
  Development & management of the project: Insights collection from exchange student mobility profiles
- Zeno Karl Schindler Award for Master Thesis - Aug. 2015
  Awarded for my master thesis at ETH Zürich
- EIT-ICT Mobility Award - Nov. 2014
  European institute of technology scholarship
- Goa Scholars (grant from Government of India) - Aug. 2012
  Scholarship for master's education

Extracurricular Activities

- Initiated technology drive to develop interest in tech in rural Indian students: Visited 25 schools to present & demonstrate robotic applications
- Running: Lausanne marathon (2018, 2019), Neuchâtel semi-marathon(2018), 20KM de Lausanne ('16, '17, '18, '19), Ultimate frisbee (Lausanne)