

## CURRICULUM VITAE

**Jose Paolo V. Talusan, PhD**

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### SUMMARY

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- Computer scientist with a background in cyber-physical systems and smart connected communities
- Working on internet of things, middleware frameworks, and smart transportation systems
- Self-motivated and capable of working independently or in a team setting
- Able to work and collaborate internationally
- 5+ years of experience in professional software design and development
- Comfortable working with existing and established code bases

### RESEARCH EXPERIENCE

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**Vanderbilt University**, Nashville, TN

Post-Doctoral Researcher, Abhishek Dubey

May 2022 – Currently

- Working closely with public transit agencies to develop algorithms to optimize transit workflows. Formulating optimization problems as Markov Decision processes and solving them using Monte Carlo Search Trees, including EV charger optimization and transit stationing and dispatch. Mentoring graduate students and improving current workflows by deploying them on the cloud.

**Nara Institute of Science and Technology**, Japan

Post-Doctoral Researcher, Keiichi Yasumoto

Sep 2020 – Mar 2022

- Researching on cyber-physical systems for transportation networks, with an emphasis on internet of things and distributed computing over edge devices
- Ongoing collaboration with partner institutes on implementing anomaly-based incident detection for smart transportation cyber-physical systems

Doctoral Researcher

Sep 2017 – Sep 2020

- **Dissertation:** *Design and Implementation of Decentralized Smart City Services on the Edge*
- Developed a middleware framework for internet of things (IoT) for use in resource constrained edge devices enabling services without the presence of centralized architectures
- Worked in collaboration with other institutes from both USA and Japan as part of the US-JAPAN Network Opportunity (JUNO-2) project

### EDUCATION

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**Nara Institute of Science and Technology**, Japan

Ph.D. in Engineering, Graduate School of Information Sciences

Dec 2020

**Ateneo de Manila University**, Philippines

M.S., Electrical Engineering, School of Science and Engineering

Mar 2015

B.Sc., Electronics Communication Engineering, School of Science and Engineering

Mar 2011

### PUBLICATIONS

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1. **Jose Paolo Talusan**, Michael Wilbur, Abhishek Dubey, and Keiichi Yasumoto. "Route Planning through Distributed Computing by Road Side Units". IEEE Access (2020), vol. 8, pp. 176134-176148
2. M. Islam\*, **Jose Paolo Talusan\***, S. Bhattacharjee, F. Tiausas, A. Dubey, K. Yasumoto, and S. K. Das, Scalable Pythagorean Mean Based Incident Detection in Smart Transportation Systems, ACM Trans. Cyber-Phys. Syst., Jun. 2023.

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## INTERNATIONAL CONFERENCES/WORKSHOPS

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1. Mohammad Jaminur Islam\*, **Jose Paolo Talusan\***, S. Bhattacharjee, F. Tiausas, S. Vazirizade, A. Dubey, K. Yasumoto, S. Das. “Anomaly based Incident Detection in Large Scale Smart Transportation Systems”. ICCPS 2022 (Best paper nominee)
2. F. Tiausas, **Jose Paolo Talusan**, Y. Ishimaki, H. Yamana, H. Yamaguchi, S. Bhattacharjee, A. Dubey, K. Yasumoto, S. Das. “User-centric Distributed Route Planning in Smart Cities based on Multi-objective Optimization”. IEEE SMARTCOMP 2021
3. Y. Nakamura, **Jose Paolo Talusan**, T. Mizumoto, H. Suwa, Y. Arakawa, H. Yamaguchi, K. Yasumoto. “ProceThings: Data Processing Platform with In-situ IoT Devices for Smart Community Services”. ICDCN 2021
4. M. Wilbur, C. Samal, **Jose Paolo Talusan**, K. Yasumoto, A. Dubey. “Time-dependent Decentralized Routing using Federated Learning”. ISORC 2021
5. **Jose Paolo Talusan**, M. Wilbur, A. Dubey, K. Yasumoto. “On Decentralized Route Planning Using the Road Side Units as Computing Resources”. International Conference on Fog Computing (ICFC) 2020
6. **Jose Paolo Talusan**, F. Tiausas, K. Yasumoto, M. Wilbur, G. Pettet, A. Dubey, S. Bhattacharjee. “Smart Transportation Delay and Resiliency Testbed based on Information Flow of Things Middleware”. IEEE SMARTCOMP 2019
7. **Jose Paolo Talusan**, Y. Nakamura, T. Mizumoto, K. Yasumoto. “Near Cloud: Low-cost Low-power Cloud Implementation for Rural Area Connectivity and Data Processing”. IEEE COMPSAC 2018

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## TECHNICAL SKILLS

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**Programming:** Python (Tensorflow/Keras, Pyspark, Geopandas, GTFS), Google Cloud Services, C/C++, Java, Docker, Redis, Prometheus, Grafana, Pulsar, MQTT, ZeroMQ, Git

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## CONFERENCE CHAIRS

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Big Data and IoT Security in Smart Computing Technical Program Committee	Jun 2022
International Workshop on Pervasive Information Flow Technical Program Committee/Web Chair	Mar 2022

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## PROFESSIONAL EXPERIENCE

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<b>R&amp;D Engineer/Software Test Engineer</b> Research and Development, Nokia	Dec 2015 – Sep 2017
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- Maintained, developed and tested features for Nokia’s base stations. Used C/C++ and Java.

<b>Software Developer</b> Smart Communications, Innerworks International	Nov 2014 – Nov 2015
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- Developed backend applications for local mobile carriers, used primarily C++ and Java.

<b>Science Research Specialist</b> Research and Development, Ateneo de Manila	May 2014 – Dec 2015
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- Developed an Android application that detects shrimp pathogens using image processing (OpenCV).

<b>Software Developer</b> Research and Development, Canon	Jun 2011 – Jun 2013
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- Maintained and developed features for Canon’s multi-functional printers, used C.

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## ACHIEVEMENTS/AWARDS

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Japanese Government Scholarship	Sep 2017
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