CURRICULUM VITAE

Jose Paolo V. Talusan, PhD
1700 Pearl Street, APT 221, Nashville, Tennessee 37203
jose.paolo.talusan@vanderbilt.edu | +1 (615) 425-8125

SUMMARY

- Computer scientist with a background in cyber-physical systems and smart connected communities
- Working on optimizing public transportation systems by modeling them as decision-making problems
- Worked on internet of things and middleware for deploying systems on resource-constrained devices
- Self-motivated and capable of working independently or in a team setting
- 5+ years of experience in professional software design and development
- Comfortable working with existing and established code bases

RESEARCH EXPERIENCE

Vanderbilt University, TN, USA
Post-Doctoral Researcher — Apr 2022 – Apr 2023

- 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 — 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

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

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. Mohammad Jaminur Islam***, Jose Paolo Talusan***, S. Bhattacharjee, F. Tiausas, A. Dubey, K. Yasumoto, S. Das. "Scalable Pythagorean Mean based Incident Detection in Smart Transportation Systems, TCPS (Under review)

INTERNATIONAL CONFERENCES/WORKSHOPS

1. **Jose Paolo Talusan,** A. Pettet, M. Wilbur, A. Mukhopadhyay, D. Freudberg, A. Dubey. "Online Approach to Solving Public Transit Stationing and Dispatch Problem". PA-KDD 2023 (Under review)
2. **Jose Paolo Talusan,** A. Mukhopadhyay, D. Freudberg, A. Dubey. "On Designing Day Ahead and Same Day Ridership Level Prediction Models for City-Scale Transit Networks Using Noisy APC Data". IEEE BigData 2022
3. 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
4. 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
5. 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
6. M. Wilbur, C. Samal, **Jose Paolo Talusan**, K. Yasumoto, A. Dubey. "Time-dependent Decentralized Routing using Federated Learning". ISORC 2021
7. **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
8. **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
9. **Jose Paolo Talusan**, F. Tiausas, S. Stirapongsasuti, Y. Nakamura, T. Mizumoto, K. Yasumoto. "Evaluating Performance of In-Situ Distributed Processing on IoT Devices by Developing a Workspace Context Recognition Service". IEEE PERCOM 2019
10. **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

PROFESSIONAL EXPERIENCE

R&D Engineer/Software Test Engineer Dec 2015 – Sep 2017
Research and Development, Nokia

- Maintained, developed and tested features for Nokia's base stations. Used C/C++ and Java.

Software Developer Nov 2014 – Nov 2015
Smart Communications, Innerworks International

- Developed backend applications for local mobile carriers, used primarily C++ and Java.

Science Research Specialist May 2014 – Dec 2015
Research and Development, Ateneo de Manila

Software Developer Jun 2011 – Jun 2013
Research and Development, Canon

TECHNICAL SKILLS

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

ACHIEVEMENTS/AWARDS

Japanese Government Scholarship Sep 2017