Vanessa H. Tan

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Summary

A passionate engineer with a demonstrated history of working in the research industry. Has experience with digital signal processing, machine learning, simulations, and virtual reality. Interested in learning new technologies and providing solutions that would greatly benefit businesses and end users.

Experience

Stamina4Space (under the PHL-50 Project): Localizing the Diwata-1, 2 Bus System as the Country's Space Heritage 50 kg Microsatellite Bus *EEEI, UP Diliman, Philippines*
UNIVERSITY RESEARCHER *August 2019 - August 2021*
- Published three papers regarding satellite simulations, cloud detection, and attitude control
- Developed MATA (Mission Attitude and Telemetry Analysis) software for micro-satellite
- Implemented image processing techniques and machine learning methods for satellite cloud detection
- Integrated cloud detection and satellite attitude algorithms in the MATA simulator via sockets
- Conducted experiments on reinforcement learning algorithms for satellite attitude control
- Handled student / graduate assistants conducting machine learning experiments
- Provided assistance and presentations in different tours and events of the organization

Digital Signal Processing Laboratory *EEEI, UP Diliman, Philippines*
GRADUATE ASSISTANT *August 2018 - July 2019*
- Gathered and analyzed audio samples of Philippine ethnic instruments for Katunog, a government funded project
- Participated in the sprint meetings for the design of the project's website

Imagine Realities Inc *Quezon City, Philippines*
FREELANCE UNITY DEVELOPER *February 2018 - July 2018*
- Led a team of developers in creating a desktop application for the client's event
- Conducted QA tests for the smooth delivery of the product

Ubiquitous Computing Laboratory *EEEI, UP Diliman, Philippines*
RESEARCH ASSOCIATE *April 2016 - April 2018*
Worked on two government funded projects: ANEEME and VREX. Published papers for each project.
- ANEEME: Synthesizing and Sharing Animation Building Blocks for Rapid Creation of 3D Motion Scenes
  - Led a team of programmers and artists in the development of a Virtual Reality scene creator application
  - Implemented the game and sound design of the VR application
  - Designed the UX/UI of the application with the help of UX research methods
  - Conducted research on an automatic skeletal rigging algorithm using machine learning
  - Created a dataset of 3D humanoid models with poses for the experiments of the rigging algorithm
  - Organized and created documents for project planning, meetings, and documentations
  - Conducted market and user research for the project
  - Devised a business model which helped the team be in the Top 12 of the Ideaspace Startup Competition
- VREX: Human Hands as Input Device for an Immersive Virtual Reality Experience
  - Designed and developed a scene for the "ElderVine" Virtual Reality fantasy game
  - Implemented the sound design of the VR fantasy game

Accenture, Inc. *Taguig City, Philippines*
ASSOCIATE SOFTWARE ENGINEER *September 2015 - March 2016*
- Handled customer related issues on the key on-boarding processes and technology improvements for Office 365
- Collaborated with offshore software engineers in providing solutions to customers

Education

Duksung Women's University
KOREAN LANGUAGE PROGRAM *August 2021 - August 2022*

University of the Philippines - Diliman

MASTER OF SCIENCE IN ELECTRICAL ENGINEERING

(Specializing in Audio Signal Processing)   *August 2016 - December 2019*
- Relevant Coursework — *Deep Learning, Speech Processing, Video Processing, Audio Processing*
- Research Focus — *Multi-Task Learning for Detection, Recovery, and Separation of Polyphonic Music*

University of the Philippines - Diliman

BACHELOR OF SCIENCE IN ELECTRONICS AND COMMUNICATIONS ENGINEERING   *June 2010 - June 2015*
- Relevant Coursework — *Probability and Statistics, Linear Algebra, Digital Signal Processing*
- Research Focus — *Melody Extraction using Signal Processing and Machine Learning*

St. Paul University Quezon City

HIGH SCHOOL   *June 2006 - March 2010*
- Awarded for Academic Excellence
- Awarded a Silver Medal for Leadership as part of the Student Governing Board

Skills

Programming	Python, Keras, Tensorflow, C#, C, MATLAB, LaTeX, Git
Simulation Software	Unity3D, Maya, Unreal Engine
Certifications	Licensed Electronics Engineer, Creative Applications of Deep Learning with TensorFlow
Languages	Filipino, English, Korean
Others	Machine Learning, Deep Learning, Project Management, Virtual Reality, Game Development

Publications

MATA-RL: Continuous Reaction Wheel Attitude Control Using the MATA Simulation Software and Reinforcement Learning   *Virtual*

SMALL SATELLITE CONFERENCE 2021   *August 2021*

MATA-Cloud: A Cloud Detection and Dynamic Attitude Correction Evaluation Software   *Virtual*

SMALL SATELLITE CONFERENCE 2021   *August 2021*

MATA: Mission, Attitude, and Telemetry Analysis Software for Micro-Satellites   *Virtual*

IEEE REGION 10 CONFERENCE (TENCON)   *November 2020*

Multi-task Learning for Detection, Recovery, and Separation of Polyphonic Music   *Virtual*

IEEE REGION 10 CONFERENCE (TENCON)   *November 2020*

Time-Frequency Representations for Single-Channel Music Source Separation   *Manila, Philippines*

INTERNATIONAL SYMPOSIUM ON MULTIMEDIA AND COMMUNICATION TECHNOLOGY 2019   *August 2019*

Audio Event Detection using Wireless Sensor Networks based on Deep Learning   *Taipei, Taiwan*

11TH EAI INTERNATIONAL WIRELESS INTERNET CONFERENCE (WiCON)   *October 2018*

VREX: A Framework for Immersive Virtual Reality Experiences   *Sydney, NSW, Australia*

THE IEEE REGION 10 SYMPOSIUM (IEEE TENSYMP)   *July 2018*

ANEEME: Synthesizing and Sharing Animation Building Blocks for Rapid Creation of 3D Virtual Scenes   *Bangkok, Thailand*

SIGGRAPH ASIA 2017: VR SHOWCASE   *November 2017*

Study of Automatic Melody Extraction Methods for Philippine Indigenous Music   *Penang, Malaysia*

IEEE INTERNATIONAL CONFERENCE ON CONTROL SYSTEM, COMPUTING AND ENGINEERING   *November 2015*

Study of Hybrid Methods for Melody Extraction of Polyphonic Signals for Philippine Indigenous Music   *Manila, Philippines*

8TH AUN/SEED-NET CONFERENCE   *November 2015*

Awards & Scholarships

2021 **Global Korea Scholarship (2021 - 2025)**, National Institute for International Education
2018 **DOST-SEI Scholar (2018 - 2019)**, Engineering Research and Development for Technology
2018 **Finalist (Included in the Top 12)**, Ideaspace Startup Competition
2018 **Second Runner-Up**, AWS Hackdays Manila (Machine Learning Edition)
2015 **Best Paper**, 8th AUN/SEED-NET Conference
2014 **University Scholar (Dean's Lister)**, 1st Semester 2014 - 2015
2010 **Silver Medal for Leadership**, Student Governing Board
2010 **Academic Excellence**, High School

Activities

2021 **Contributor**, Space and Artificial Intelligence Conference (Presentation Title: Deep Reinforcement Learning for Diwata Microsatellite Attitude Control with MATA Simulator and OpenAI Gym)
2021 **Speaker**, COE 197D: Data Driven Control Discussions
2020 **Volunteer**, ACM Special Interest Group on Computer Graphics (SIGGRAPH Asia)
2019 **Speaker**, UX of XR - Designing for Immersive Technologies
2018 **Speaker**, Computer Research and Engineering Symposium (CoRES)
2017 **Speaker**, Animahenasyon: 11th Philippine Animation Festival
2017 **Participant**, HealthHacks
2015 **Participant**, Accenture: 10th Student Leadership Conference
2013 **Participant**, IECEP-QCSC: Leadership Training Seminar

Organizations

Institute of Electronics Engineers of the Philippines UP Student Chapter

PRESIDENT *June 2014 - June 2015*
- Led weekly planning meetings for the events of the organization
- Coordinated with other schools and organizations in handling regional events
- Planned and conducted various community services and fundraising events

Institute of Electronics Engineers of the Philippines Quezon City Student Chapter

BOARD MEMBER *June 2013 - March 2014*
- Led the organization of event promotions and documentations
- Designed and created publicity materials for different events
- Facilitated and supported the activities of the organization

UP Alliance for Responsive Involvement and Student Empowerment (UP ARISE)

DIRECTOR FOR PHOTOGRAPHY AND MEDIA *June 2013 - March 2014*
- Responsible for event documentations of the organization