Tuan Dang

Location: Arlington, Texas, USA

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EMPLOYMENT

The University of Texas at Arlington	USA
Research/Teaching Assistant	*2021 – Present*
Robot/Motion Controller, Presto Solution	South Korea
Project Manager	*2016 – 2020*
Pham Van Dong University	Vietnam
Lecturer	*2014 – 2015*
Sungkyunkwan University	South Korea
Research Assistant	*2011 – 2013*
Renesas Semiconductor	Vietnam
Software Engineer	*2010 – 2011*

EDUCATION

University of Texas at Arlington	Texas, USA
Ph.D. in Computer Science	*Jan 2021 – Present*
Supervisor	*Dr. Manfred Huber*
Thesis	*On-going*
Sungkyunkwan University	South Korea
M.Sc., Electrical and Computer Engineering	*2011 – 2013*
Supervisor	*Dr. Jae Wook Jeon*
Thesis	*A gateway for multi-devices between Mechatrolink-III and RS-485*
Ho Chi Minh City University of Technology	Vietnam
Bachelor, Computer Science and Engineering	*2005 – 2010*
Supervisor	*Dr. Duc-Anh-Vu Dinh*
Thesis	*T-Engine Smartphone (Score : 10/10)*

PUBLICATIONS AND RESEARCH ACTIVITIES

Conference Proceedings

11. **Tuan Dang**, Khang Nguyen, and Manfred Huber. Multiplanar Self-Calibration for Mobile Cobot 3D Object Manipulation using 2D Detectors and Depth Estimation . IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2023).

10. Khang Nguyen, **Tuan Dang**, and Manfred Huber. Online 3D Deformable Object Classification for Mobile Cobot Manipulation . International Symposium on Robotics (ISR 2023).

9. **Tuan Dang**, Khang Nguyen, and Manfred Huber. ExtPerFc: An Efficient 2D and 3D Perception Software-Hardware Framework for Mobile Cobot. arXiv:2306.04853v1, 2023.

8. **Tuan Dang**, Khang Nguyen, and Manfred Huber. PerFc: An Efficient 2D and 3D Perception Software-Hardware Framework for Mobile Cobot. In The Florida Artificial Intelligence Research Society 36th, (FLAIRS-36) 2023. Github | Video Demo

7. Harish Ramachandramoorthy (¥), **Tuan Dang** (¥), Ankitha Srinivasa, Kytai T. Nguyen and Phuc Nguyen. Development of a Smart Portable Hypoxic Chamber with Accu-rate Sensing, Control and Visualization of In Vitro Cell Culture for Replication of Cancer Microenvironment. In MDPI Cancer Journal 2023.
¥ Authors contributed equally. This work is partially supported by the **National Institutes of Health (NIH, R15 Award #HL156076 and R01 Award #HL158204)**.

6. **Tuan Dang**, Trung Tran, Khang Nguyen, Tien Pham, Nhat Pham, Tam Vu, Phuc Nguyen. IoTree: A Battery-free Wearable System with Biocompatible Sensors for Continuous Tree Health Monitoring. In ACM MobiCom 2022. Github | Video Demo, this works is partially supported by **National Science Foundation (NFS #2132112)**.

5. **Tuan Dang**, Trung Tran, Khang Nguyen, Tien Pham, Nhat Pham, Tam Vu, Phuc Nguyen. IoTree: Demo paper. In ACM MobiCom 2022.

4. **Tuan Dang**, Nghia Luong, Vinh Dinh (2014). A virtual LiDAR sensor for autonomous vehicles using real-time Linux kernel. In ACIS 2014, The Third Asian Conference on Information Systems (pp. 97–102).

3. **Tuan Dang**, Jin Ho Kim, Jae Wook Jeon (2013). <u>Performance analysis of Mechatrolink-III</u>. In 2013 11th IEEEInternational Conference on Industrial Informatics (INDIN) (pp. 152–157). IEEE.

2. Jin Ho Kim, **Tuan Dang**, Jae Wook Jeon, Bok Sun Yeom (2013). <u>Design of a seamless gateway for Mechatrolink</u>. In 2013 IEEE International Conference on Industrial Technology (ICIT) (pp. 1246–1251). IEEE.

1. **Tuan Dang**, Jin Ho Kim, Dung Nguyen, Jae Wook Jeon (2012). <u>A Gateway for Multi-device Communicationbetween Mechatrolink-III and RS-485</u>. In 2012 12th International Conference on Control, Automation and Systems (pp. 294–299). IEEE.

Under Review/Submitted

1. ICRA-2024

Patents

1. Method and Apparatus for Continuous Plant Health Monitoring Using a Battery-free System with Biocompatible Implanted Sensors (2022, Accepted).

Review papers

9. <u>IEEE International Conference on Robotics and Automation (ICRA 2024)</u>.

8. <u>The 2023 International Symposium on Electrical and Electronics Engineering (ISEE 2023)</u> (6 papers).

7. <u>Winter Conference on Applications of Computer Vision, WCACV 2024</u>

6. <u>IEEE Robotics and Automation Letters</u> (2 rounds).

5. <u>The 2023 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2023)</u>.

4. <u>IEEE Transaction Mobile Computing 2023 (2 rounds)</u>

3. <u>REV Journal on Electronics and Communications 2023</u>.

2. <u>15th Asian Conference on Intelligent Information and Database Systems (Springer)</u>.

1. <u>14th Asian Conference on Intelligent Information and Database Systems (Springer)</u>.

AWARDS AND ACHIEVEMENTS

Travel Grant from IROS 2023, Detroit, USA	*Link*	Sept 2023
Travel Grant from CSE Dept/Dean Office UT Arlington, US		Sept 2023
Travel Grant from UT Arlington, US		May 2022
Outstanding TA Award at UT Arlington, US	*Photo*	2022
Seoul Tech Award, With Presto Team at Seoul, South Korea	*Photo*	2019
Outstanding Employee Presto Solution, South Korea		2018
Outstanding Employee Presto Solution, South Korea		2017
Second prize HCMC University of Technology in Robot Contest, Vietnam		2008
First prize Software NXP Semiconductor Competition in Vietnam	*Photo 1 | Photo 2*	2008
Third prize Hardware NXP Semiconductor Competition in Vietnam		2008
Consolation prize NextGen, Mobifone Vietnam, Vietnam		2007

TEACHING AND RESEARCH ACTIVITIES

Teaching

• Teaching Assistant, CSE 5305, Foundation of Graduate Level Studies in Computer Science	Fall 2023
• Teaching Assistant, CSE 6363 Section 002, 102, Machine Learning	Spring 2023
• Teaching Assistant, CSE 6331-980, Advanced Topics in Database System	Fall 2022
• Teaching Assistant, CSE 5334-980, Data Mining	Fall 2022
• Teaching Assistant, CSE 5331-001, Database Implement/Theory	Summer 2022
• Teaching Assistant, CSE 6331 Section 001, 002, 004, Advanced Topics in Database System	Summer 2022
• Teaching Assistant, CSE 5333-001, Cloud Computing	Fall 2021
• Teaching Assistant, CSE 4334-003, Data Mining	Fall 2021
• Teaching Assistant, CSE 3318-004, Algorithms and Data Structures	Spring 2021

Mentoring

- Mentor NSF-REU undergraduates at the UTA Hybrid Atelier Lab   Summer 2022
- Mentor undergraduates at the UTA Wireless and Sensor Systems Lab   Jan 2021 - Jul 2022
- Students
    - * Khang Nguyen NSF REU Personnel (Granted)

Others

- Teaching Assistance at OurCS@DFW Workshop at UT Arlington   Spring 2022
- Web Chair at DroneNet Workshop at MobiSys Conference 2021   Summer 2022

PROJECTS

20. **3D Perception Software Framework for Mobile Cobot**   2022 – Present

    Roles: Design and implement a software-hardware framework for mobile co-bot using ROS and OpenVINO.

19. **Drone Localization**: Cross-model Learning Model using Acoustic Signal for Drone Localization   2022 – 2023

    Roles: Led a team to build algorithms to detect drones using sound

18. **Hypoxia Chamber**: Hypoxia Chamber for Cell Culture for Replication of Cancer Microenvironment   2021 – 2023

    Roles: Built control algorithms, cloud storage, and visualization interface

17. **IoTree**: A Battery-free Wearable System with Biocompatible Sensors for Tree Health Monitoring   2021 – 2022

    Roles: Led a team to build a prototype (hardware, firmware, and PC software) from scratch
    Main Paper | Demo Paper |Github | Video

16. **Teeth**: Teeth Functional Occlusion   2021 – 2022

    Roles: Built the first version of the hardware prototype

15. Company Projects   2020 - 2021

    - Samsung CNC Machine
      Roles: Built a motion control algorithm using G-code
    - WinTech CAD/CAM and Motion Design for CNC-Cutting Machine
      Roles: Advised software architecture, managed an outsourcing company
      for function design, and reviewed source-code
    - Acontis's EtherCat Network Simulator SDK
      Roles: Integrated the SDK to current controller firmware and created user-application
    - Acontis's EC-Engineer SDK
      Roles: Designed and implemented motion controller diagnostic tool by on the SDK

14. Developing Teaching Pendant Develop using Qt 5.12   2019 – 2020

    Roles: Customized hardware and designed Teaching Pendant

13. Developing Robot Controller Programing Language   2018 – 2019

    Roles: Designed and implemented Robot Controller Language

12. Porting Robot Controller on HW platform (x86, ARM), OS (RT-Linux, Xenomai2, 3)   2018 – 2019

    Roles: Ported EtherLab, Simple Open EtherCat Master, and Acontis software
    into the company's robot controller firmware.

11. Developing SDC Mark II Robot for Samsung Display   2017 - 2018

    Roles: Developed a firmware for motion controller

10. Developing EtherCat IO slave support CoE/FoE   2016 - 2017

    Roles: Designed hardware and firmware for EtherCat Slave Controller using ET1100 and MCU PIC24

9. Android/iOS/Web project   2014 - 2015

    Roles: Coached students to develop applications for multiple platforms, including Android, iOS, and Web
    Notable project: Hong Lan Money Transfer (USA)

8. Education Projects 2013 - 2016

Roles:

- Researched embedded systems for educational purposes, such as Arduino and Raspberry Pi
- Coached students in competing at **Olympic Vietnam Information** and ACM Asia Contests: Photo 1 | Photo 2
- Coached students in researching hand robots at a national contest.
- Presented academic papers at domestic and international conferences
- Lectured Data Structure & Algorithms and Operating Systems classes

7. Hyundai projects 2012 - 2013

- Automotive Gateway
  Roles: Developed a gateway for automotive systems using AUTOSAR OS with CAN,LIN, FLEXRAY
- Virtual Sensor Network for unmanned car
  Roles: Developed this virtual sensor network for unmanned cars to reduce testing costs in the real environment

6. Automation Lab's projects 2011 - 2012

- Multi-industrial network protocol for motor drive
  Roles: Designed and implemented a motor driver for multi-industrial network protocol such as EtherCat, Mechatrolink-II, Mechatrolink-III, Ethernet PowerLink, CAN, RS232, RS485, I/O with Fastech
- A gateway for industrial network based on Mechatrolink-III
  Roles: Designed and implemented a gateway between a traditional fieldbus network (RS-485) and an Ethernet-based network (Mechatrolink-III) with Fastech

5. Developing ETP module 2011 - 2012

Roles: Designed the ETP module used in a base station for a telecom company

4. Renesas Projects 2010 - 2011

- Camera driver for Android 2.3
  Roles: Developed drivers and applications on the Android platform to test camera modules
- 3D Cube based on Android Platform
  Roles: Designed and implemented 3D Cube using GPU that could play 3 movies on 3Dcube concurrently and use GPU to accelerate

3. MCU project for educational purpose 2009 - 2010

Roles: Developed a project using 89C51 to teach student study about micro-controllers

2. Evaluation software for some microcontroller families 2008 - 2009

Roles: Wrote evaluation software for 89s family, AVRs family, PICs family, ARMs family,SHs family, Epson family and developed software for robots using ARM-based LPC2148MCU

1. Embedded Software for Racing Car using H8 MCU 2007 - 2008

Roles: Developed an embedded software for racing cars using H8 MCU funded by Renesas

TECHNICAL SKILLS

Coding	:	C/C++, C#, Java/JavaScript, Python, PHP, MATLAB, and LATEX.
Hardware Design	:	Altium and Orcad
Data Analysis/Presentation	:	MATLAB and MatlibPlot