CHAINATEE TANAKULRUNGSON

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Portfolio: http://ctanakul.github.io/chainatee-portfolio

EDUCATION

Northwestern University — Evanston, Illinois
Master of Science in Robotics (GPA: 3.88/4.00) — Anticipated Graduation Dec 2017
Relevant Courses: Advanced Mechatronics, Computational Geometry, Machine Learning, ROS, Robot Kinematics, Lagrangian Dynamics, Nonlinear Optimization, Computer Vision

Chulalongkorn University — Bangkok, Thailand
Bachelor of Engineering in Mechanical Engineering (GPA: 3.56/4.00) — Jun 2011 - Aug 2015

WORK EXPERIENCE

Human Robotics Lab, Chulalongkorn University and Hospital — Bangkok, Thailand
Research Assistant, Mechanical Design and Market Research — May 2015 – Jul 2016

- Developed a prototype of a static wrist holder in CATIA for an exoskeleton with a mobile transmission system for Brachial Plexus Injury (BPI) patients whose arm movements are limited due to a nerve injury
- Led primary market research and contributed to final prototype which is currently undergoing clinical trials
- Provided technical assistance to the team

Siam Kubota Corporation Co., Ltd. — Chonburi, Thailand
Siam Kubota Challenge 2014 Production Engineering Intern — Mar – Jul 2014

- Designed a robust PLC logic ladder to minimize defects in tractor engine assembly line by safeguarding against the failure of torque engine nut
- Optimized engine assembly process with an improved procedure resulting in a 10-second reduction in production line

PROJECTS

Boeing: Part Assembling Robot Project — Evanston, Illinois
Mechanical Design Engineer — Apr 2017 – Present

- Reviewed and selected a mobile base of the swarm robot for Boeing airplane assembly

Robotic Catching Project — Evanston, Illinois
System Architect and Software Developer — Jan 2017 – Present

- Used RGBD sensor in conjunction with OpenCV to detect 3D object position
- Designed an algorithm to predict final position of a ball based on initial throwing trajectory, implemented in Python
- Designed Jacobian based endpoint control algorithm for moving a robot arm to catch the ball
- Integrated all functionalities in ROS

Self-driving Mechatronics Car Project — Evanston, Illinois
Developer — Jan 2017 – Present

- Designed a custom PCB with EAGLE PCB CAD for PIC microcontroller
- Programmed PIC software in C and sent output of computer vision over USB between Android phone camera and PIC
- Designed and fabricated custom built chassis

Touchback Project: System for Recording and Replaying Textures on a haptic touchscreen — Evanston, Illinois
Mechanical Design and Fabrication Engineer — Jan - Mar 2017

- Fabricated test samples with varying texture properties in SolidWorks
- Used record player phonograph needle and amplifier to record sample textures
- Played back surface feature on haptic touchscreen allowing users to feel virtual texture
- Prototyped sinusoidal grating panel for recording material texture that can be played back on a touchscreen with haptic feedback which allowed users to sense simulated surface roughness from vibration

Object Localizing Robot Project — Evanston, Illinois
Developer — Sep - Nov 2016

- Wrote software in Python to control Baxter, the collaborative robot of Rethink Robotics, based on inverse kinematics service
- Integrated the software into ROS framework which controls Baxter to detect, grasp and move object, based on user's command

LEADERSHIP

Little Builders Project — Bangkok, Thailand
Design Coach — Dec 2015 - Feb 2016

- Supervised high school student project to create smart and sustainable waste-collecting water wheel to improve the condition of Phra Kanong canal

SKILLS

Python, MATLAB, C/C++, ROS (Robot Operating System), OpenCV, Mathematica, Linux, GIT, CATIA, SolidWorks, EAGLE PCB CAD, Android (Basic), Microcontroller (PIC32, Arduino)

AWARDS

- Tanakulrungson, C., Ativeerakul, C., Glankwahmdee, J., & Wannasuphoprasit, W. (2015, Dec). *Design and Development of a pinch rehabilitation device*. Conference talk presented at the International Conference on Mechanical Engineering by Thai Society of Mechanical Engineers, Petchburi, Thailand.
- 2013 Best Overall Design award for designing new Lilo and Stitch simulation game in Disney's Ultimate EnginEARing Exploration