

# CHAINATEE TANAKULRUNGSON

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



## EDUCATION

### Northwestern University

Master of Science in Robotics (GPA: 3.88/4.00)

Relevant Courses: Advanced Mechatronics, Computational Geometry, Machine Learning, ROS, Robot Kinematics, Lagrangian Dynamics

Evanston, Illinois  
Anticipated Dec 2017

### Chulalongkorn University

Bachelor of Engineering in Mechanical Engineering (GPA: 3.56/4.00)

Bangkok, Thailand  
Jun 2011 - Aug 2015

## WORK EXPERIENCE

### Human Robotics Lab, Chulalongkorn University and Hospital

Research Assistant, Mechanical Design and Market Research

Bangkok, Thailand  
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 trial
- Provided technological assistance to the team

### Siam Kubota Corporation Co., Ltd.

Siam Kubota Challenge 2014 Production Engineering Intern

Chonburi, Thailand  
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 by designing an improved procedure resulting in a 10-second reduction in production line

### Bangkok Bank

Student Intern

Bangkok, Thailand  
May 2015

- Developed process planning to help small size logistics solution providers adapt GPS into their business model

## ENGINEERING PROJECTS

### Robotic Catching Project

System Architect and Software Developer

Evanston, Illinois  
Jan 2017 – Present

- Detected an object position in 3D with OpenCV and RGBD sensor
- Designed an algorithm and programmed software in Python to predict trajectory of a thrown ball based on detected position
- Designed Jacobian based endpoint controller algorithm for moving a robot arm to catch the ball
- Integrated all functionalities and operated through ROS

### Self-driving Mechatronics Car Project

Developer

Evanston, Illinois  
Jan 2017 – Present

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

### Touchback Project: System for Recording and Replaying Textures on a haptic touchscreen

Mechanical Design and Fabrication Engineer

Evanston, Illinois  
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 haptics screen and allow users to sense simulated surface roughness from vibration

### Object Localizing Robot Project

Developer

Evanston, Illinois  
Sep - Nov 2016

- Wrote software in Python to move Baxter, the collaborative manufacturing robot of Rethink Robotics, based on inverse kinematics service
- Integrated the software into the system in ROS which controls Baxter to localize, grab and move object, based on users command

## LEADERSHIP

### Little Builders Project

Design Coach

Bangkok, Thailand  
Dec 2015 - Feb 2016

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

## SKILLS

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