Tanut Treratanakulwong

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▶ youtube.com/tanat44

SKILLS

Robotic Engineer, Software Engineer, Mechanical Design

INTERESTS

Product design and prototyping (Mechanical, Electrical, Software)
Cars, F1 racing

PROGRAMMING

C++, Python, Javascript (React, Node.JS)
SQL, MongoDB
Microcontroller, Linux

MODELING TOOLS / GRAPHIC

Fusion 360, Solidworks, Blender, Illustrator, Photoshop

SPOKEN LANGUAGES

Thai, English, Japanese

EDUCATION BACKGROUND

Master of Engineering in Robotics   2013
Department of Mechano-Informatics, University of Tokyo, Japan
(Awarded Japanese Government Research Scholarship)

Bachelor of Computer Engineering   2011
Faculty of Engineering, Chulalongkorn University, Thailand

RESEARCH PAPER

Low-Friction Tendon-Driven Robot Hand with Carpal Tunnel Mechanism in the Palm by Optimal 3D Allocation of Pulleys, IEEE International Conference on Robotics and Automation, 2014.

Monocoque Design of 3D-Printed Carpal Tunnel Mechanism for 11DOF Underactuated Robot Hand, 31st Robotics Society of Japan, 2013. (This paper is written in Japanese)

WORK EXPERIENCES (PAST 2 YEARS)

Lumio3D, Thailand   April 2020 ~
Software Developer

▷ Develop React frontend, Python/C++ backend for crowd face detection running on Khadas (Linux computer board), design SQL schema for face embedding storage. Design and manufacture prototype cameras.
▷ Develop machine vision application in Qt C++ & Halcon API for product defect inspections
▷ Integrate pre-trained ML model for automatic face landmark detection written in Python and 3D mesh algorithm in C++.
▷ Mechanical design of camera calibration jig, product assembly jig, tilting table, selling together with Lumio H3 Face Scanner.

Freelance Web Application Developer   2019 - 2020

▷ Web-application for managing x-ray centers (React, NodeJs, Mongo, Linux server)
▷ Flutter front-end developer for web-based import-export solution.
▷ Develop in-house CRM/ERP system for dental clinic using React, Node.JS, MySQL

NDCSYSTEM
WEB APPLICATION CRM & ERP FOR DENTAL CLINIC

- Release in May 2019, currently in production
- In-house development
- ~20 daily active terminal/users
- 5000 customer transactions monthly
- 14 treatment rooms, 18 assistants, 24 doctors

WORK SCOPE

Design, Code, Training, Infrastructure design, Deploy

TECHNOLOGY

React, Node.JS, Nginx, MySQL, Linux Server

FEATURES

Patient Info
Royalty program
Treatment record
Appointment
6-Month recheck
Integration with x-ray viewer
Timecard system
Assistant reward/commission
Payroll integration with K-Bank
Daily report
Client dashboard

PERFECT-MED

WEB APPLICATION FOR MEDICAL IMAGING CENTER

▮ Release in Dec 2019, currently in production
▮ ~300 daily active users
▮ 20GB of file uploads weekly
▮ Adopted by 34 CT/MRI stations all over Thailand

WORK SCOPE

Design, Code, Training, Infrastructure design, Deploy

TECHNOLOGY

React, Node.JS, Nginx, MongoDB, Linux Server

FEATURES

Asynchronous upload streaming for large file attachments (1GB)
Standard JWT authentication
Introduce a new workflow to streamline the work process
Daily / Monthly report
Issue Invoice, Diagnosis report
Excel export of certain reports

Low-Friction Tendon-Driven Robot Hand

Tendon-driven underactuated hand that is capable of fingertip pinching by utilizing innovative coupling mechanism

- 11-DOF design driven with 12 actuators
- Innovative coupling and carpal tunnel 3D pulley routing
- Research topic is a part of a master thesis at University of Tokyo
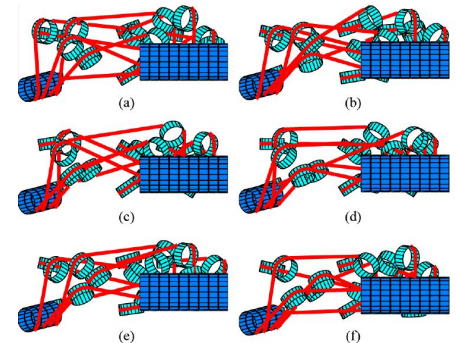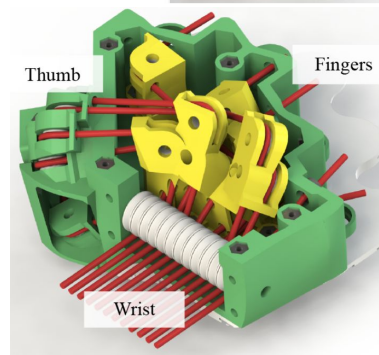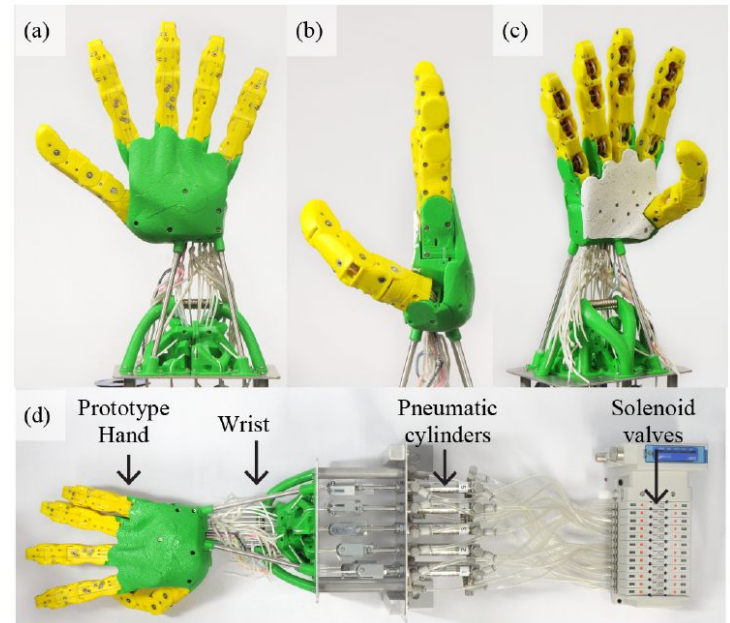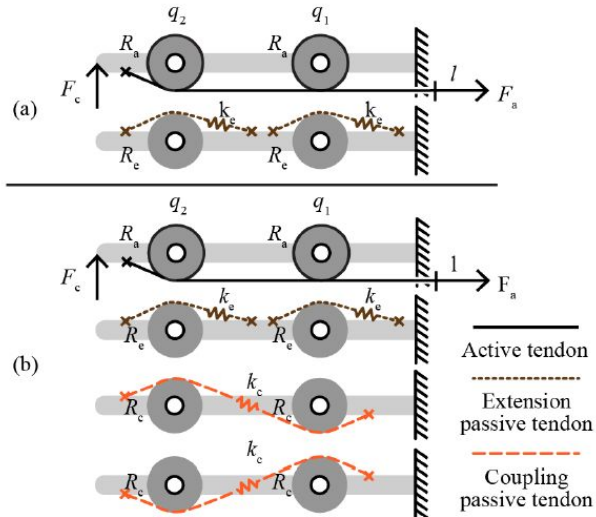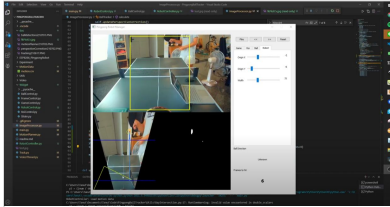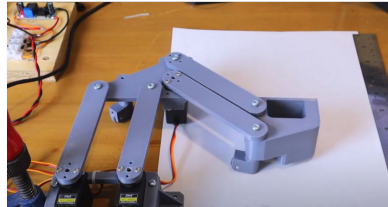- Published in IEEE ICRA Conference 2014

Fig. 1. Tendon routing of the conventional underactuated hand (a), and our proposed coupling for underactuated hand (b).
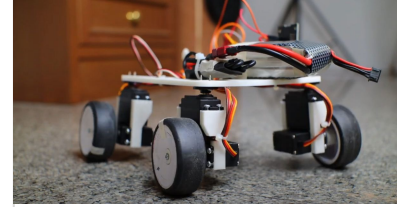
RECENT HOBBY PROJECTS

Pingpong Ball Tracker
Inverse Kinematic Motion Planner
VIDEO

Pingpong Robot Mechanics
VIDEO

Wifi-controlled mobile robot with independent steering drives
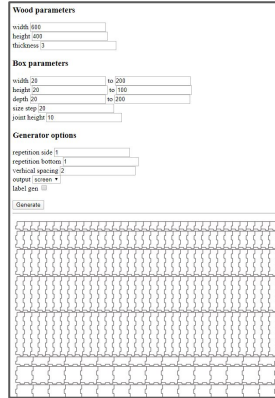VIDEO

Fully 3D-printed RC car
VIDEO

Porsche 365 Body Shell Modeling
VIDEO

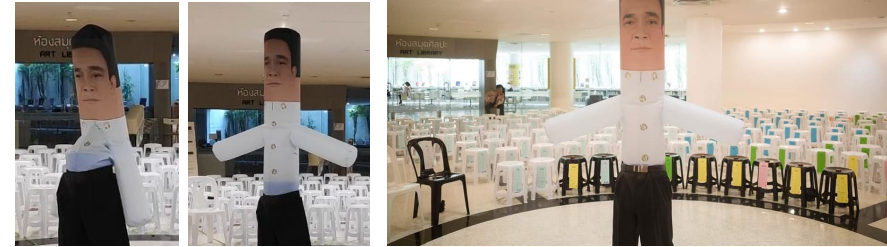3D-printed spice bottle replacement
VIDEO

BOX-JOINT PATTERN GENERATOR

▌ Box-joint pattern generation designed for laser cutting
▌ Export to vector file (.svg) for manufacturing
▌ Code in Vanilla Javascript

Wood parameters
width 600
height 400
thickness 3

Box parameters
width 20 to 200
height 20 to 160
depth 20 to 200
size step 20
joint height 10

Generator options
repetition side 1
repetition bottom 1
vertical spacing 2
output screen ▼
label gen

Generate

DANCING FIGURES

▌ Dancing figure display at Bangkok Art and Culture Center (August 2019)
▌ Blower fan controlled using arduino
▌ Keyframe synchronization with mp3 sounds

RADIO-CONTROLLED WATER GUN

▌ 2-DOF with servo controlled water gun
▌ Designed using Fusion 360 CAD
▌ April 2019

HAPTIC SURFACE RENDERING MACHINE

▌ A surface rendering device for blind education
▌ Device position is tracked using optical mouse
▌ Pitch and roll mechanism controlled by servo motor
▌ C++ GUI application Interface with Arduino using serial communication
▌ Bachelor degree graduation project in 2011