Chankyo Kim

Interest in understanding Robotics, Human, and Startup Strategy

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RESEARCH INTERESTS

Planning and Control under Uncertainty, Learning for Human-Robot Interaction, Probabilistic Approach, Theoretical Research in Planning and Control

EDUCATION

Seoul National University (SNU), Seoul, Korea — Mar. 2015 – Present
Department of Mechanical & Aerospace Engineering
Interdisciplinary Major in Artificial Intelligence
- Graduation with Honors, Summa Cum Laude, Advanced GPA : 3.98/4.0, Physics TA for 2 semesters

University of Florida (UF), English Language Institute, Florida, USA — Fall. 2015

RESEARCH & WORK EXPERIENCES

Joined as Project Manager — June. 2022 - Dec. 2022
Metalab, AI Avatar and Motion Tracking SW Startup (since 2021) in KOR
- Managed AI-Metaverse service development project (Size:$500M | Core Tech: Transformer based Vocal Generative Model, Face Generative Model)
- Present IR and fundraised $430M from VC and financial institution

Software Engineer Intern — March. 2022 – June. 2022
Bear Robotics, Autonomous Driving Serving Robot Startup in CA
SLAM Engineer
- Modified pre-developed SLAM algorithm to achieve more accurate mapping quality with less mapping effort for product-level serving robot('Servi')
- Collected and analyzed physical test data sets of the modified algorithm installed in the robot in diverse indoor areas for QA

Undergraduate Researcher — Aug. 2021 – Jan. 2022
Visual Information Processing Lab, SNU (*Advisor: Prof. Joonseok Lee*)
Project Title: ***Domain Generalization in Human Pose Estimation via Meta-learning***
- Developed modified meta-learning and human pose dataset for domain generalization in various view points, resolution, and luminous intensity

Undergraduate Researcher — Mar. 2021 – Jan. 2022
Clean Energy & Nanoheat Lab, SNU (*Advisor: Prof. Sangwook Park*)
Project Title: ***Design and Optimization of Intelligent Renewable Power System***
- Led intelligent power system research of renewable energy;
- Designed power-tracking method considering operational limit of power system component
- Wrote paper about optimization in intelligent power system

Founder, Tech Team Leader — Jan. 2021 – Present
OUTTA, Initiative for AI development and education for next generation — Boston, USA / Seoul, Korea
- Co-Founded non-profit organization OUTTA with support of MIT Beaver Works and SNU
- Launched 2022, 2021 Autonomous Racecar AI coding Competition in South Korea
- First-author educational book of control theory, image processing, SLAM, and Python

Game Developer/Internship — July. 2020 – Feb. 2021
Intellicon Meta Lab, R&D Startup — Seoul, Korea
Online Game Development: CCTV
- Developed interactive text-based game applying non-linear network managing 'Twine' software

Undergraduate Research Internship, UROP — Mar. 2020 – Sep. 2020

Biorobotics Lab, SNU (*Advisor: Prof. Kyujin Cho*)
Project Title: ***Development of Novel Tendon-clutching Algorithm Integrated of Trajectory Estimation and Feedback Control in Soft Teleoperation Glove***

- Developed novel wearable master system with one-way clutch mechanism, providing feedback control and trajectory estimation at once
- Presentation was awarded at Robotic Fair at Seoul National University

Full-Time/Part-Time Researcher Dec. 2019 – Jun. 2020
Dynamic Robotic Systems Lab, SNU (*Advisor: Prof. Jaeheung Park*)

- Initial member of TEAM SNU for ANA Avatar Xprize Competition, robot control challenge sponsored over $10M in prizes by ANA, judges included Ed Colgate, Thomas Ferris, Guy Hoffman

Project Topic: ***MPC-based Control of Slave Robot and Design for Master System***

- Modified a control framework for torque distribution to achieve stability in upper body
- Developed virtual space environment to test control of teleoperated robot hands using Unity

PAPERS

[1] **C. Kim**, et al., AI Python Coding in Easy Words with MIT Autonomous Race Car, *Hongreung Publishing Company*, Korea, 2021. [link]

[2] Y. Choi, **C. Kim**, Y. Hwang, C. Park, $J.Lee^*$, Domain generalization in human pose estimation via meta-learning, Manuscript in preparation. [pdf]

[3] **C. Kim**, $S.Park^*$, Optimization and Efficiency analysis of intelligent power system of Floating PV and Hydrogen System [pdf]

RESEARCH FUNDINGS, AWARDS, HONORS

Research Grant (\$7,000), SNU X-Corps, College of Engineering, SNU 2021
Sinyang Eminence Scholarship, Sinyang Cultural Foundation Spring. 2020 – Present
Certificate of Appreciation, Dean of the College of Engineering, SNU July. 2021

- Acknowledgement of genuine and creative efforts at the forefront of AI education in Korea

Special Award, Creative Design Fair, College of Engineering, SNU Sep. 2020
1^{st} **Prize, Engineering Design**, SNU ME Mechanical Product Design July. 2020
Best Teaching Assistant Award, SNU Fall. 2019
Eminence Scholarship (full tuition), SNU Spring. 2017, Fall. 2019
Merit-Based Scholarship (50% tuition), SNU Fall. 2016
Bronze Award, Samsung Humantech Paper Award, Samsung Feb. 2014

ORAL PRESENTATIONS

[1] **C. Kim**, J. Song, J. Seol, J. Park, S. Park, Optimization and efficiency analysis of intelligent power system of floating PV and hydrogen system, SNU X-CORPS, 2021.

[2] **C. Kim**, S. Hwang, K. Cho, Development of Novel Tendon-clutching Algorithm Integrated of Trajectory Estimation and Feedback Control in Soft Teleoperation Glove, Creative Design Fair, SNU, 2020.

TEACHING EXPERIENCES

Teaching Assistant
Physics (034.006 001), (034.006 002), Department of Physics & Astronomy, SNU Fall. 2019, 2021

- Tutored 5-10 undergraduate students 2 hours per week for 2 semester.
- Developed contents for weekly recitation on diverse theories in field of dynamics, electronics, physics
- Provided periodical one-on-one instruction and Q&A session for additional advice in background knowledge of calculus and linear algebra

LEADERSHIP AND EXTRA CURRICULAR ACTIVITIES

10th Vice Chairman/ Team Leader of General Affairs Mar. 2020 – June. 2021
STEM: SNU Tomorrow's Edge Membership, SNU Engineers Honor Society Seoul, Korea

- Wrote book for future engineers: "I want to go to engineering school" (pub : Jan. 2022)
- Organized teenager mentoring program "2021 Vision Mentoring for Prospective Engineer"