

Moses C. Nah

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Personal Website: <https://mosesnah-shared.github.io/>

Education

Massachusetts Institute of Technology (MIT)

PH.D. IN MECHANICAL ENGINEERING (MIT MECHE)

Cambridge, MA, USA

May.2020 - Present

Massachusetts Institute of Technology (MIT)

M.S. IN MECHANICAL ENGINEERING (MIT MECHE)

Cambridge, MA, USA

Sep.2018 - May.2020

Seoul National University

B.S. IN MECHANICAL AEROSPACE AND ENGINEERING

- Summa Cum Laude

Seoul, S.Korea

Mar.2011 - Sep.2018

Gyeonggibuk Science High School

EARLY GRADUATION WITH HONORS

Gyeonggi-Do, S.Korea

Mar.2009 - Mar.2011

Publications

Exp[licit]—A Robot Modelling Software based on Exponential Maps

JOHANNES LACHNER*, **MOSES C. NAH***, STEFANO STRAMIGIOLI, NEVILLE HOGAN

- Asterisk * denotes Equal Contributions
- In Revision

Robotics & Automation
Magazine

2023

Learning to Manipulate a Whip with Simple Primitive Actions —A Simulation Study

MOSES C. NAH, ALEKSEI KROTOV, MARTA RUSSO, DAGMAR STERNAD AND NEVILLE HOGAN

- In Revision

iScience, Robotics

2023

Motor Control Beyond Reach — How Humans Hit a Target with a Whip

ALEKSEI KROTOV, MARTA RUSSO, **MOSES NAH**, NEVILLE HOGAN, DAGMAR STERNAD

- New York Times Article [LINK]

Royal Society Open Science

Journal Publication, 2022

Manipulating a Whip in 3D via Dynamic Primitives

MOSES C. NAH, ALEKSEI KROTOV, MARTA RUSSO, DAGMAR STERNAD AND NEVILLE HOGAN

IROS

Prague, Czech Republic, Sep.2021

Online Impedance Adaptation Facilitates Manipulating a Whip

XIAOFENG XIONG, **MOSES C. NAH**, ALEKSEI KROTOV AND DAGMAR STERNAD

IROS

Prague, Czech Republic, Sep.2021

Dynamic Primitives Facilitate Manipulating a Whip

MOSES C. NAH, ALEKSEI KROTOV, MARTA RUSSO, DAGMAR STERNAD AND NEVILLE HOGAN

- Best Student Paper Award [LINK]

BIOROB

New York, USA, Nov.2020

Motion Planning of Autonomous Personal Transporter Using Model Predictive Control for Minimizing Non-Minimum Phase Behavior

DONGIL CHOI, MINSU KIM, HYEONGKEUN KIM, CHOE JONGHUN AND **MOSES C. NAH**

International Conference on
Ubiquitous Robots (UR)

Honolulu, U.S.A, Jun.2018

Design Analysis of Tuskbot: Universal Stair Climbing 4-Wheel Indoor Robot

JONGHUN CHOE, UKJIN KWON, **MOSES C. NAH** AND HYEONGKEUN KIM (EQUAL CONTRIBUTIONS)

- ‘Tuskbot with Track Mechanism’ for Stairs with Large Nose and Stairs without Riser [LINK]
- ‘Tuskbot with Length Adjustment Mechanism’ for Stairs with Various Height and Depth [LINK]

IROS

Vancouver, Canada, Sep.2017

‘Tuskbot’: Design of the Mobile Stair Climbing 2 by 2 Wheels Robot Platform with Novel Passive Structure ‘Tusk’

JONGHUN CHOE, **MOSES C. NAH**, HYEONGKEUN KIM AND UKJIN KWON (EQUAL CONTRIBUTIONS)

*International Conference on
Control, Automation and
Robotics (ICCAR)*

Nagoya, Japan, Apr.2017

Rocker-Bogie with ‘Tusk’: Design of the Mobile Robot Platform that can Climb Stairs with Tusk and Rocker-Bogie Mechanism

UKJIN KWON, HYEONGKEUN KIM, **MOSES C. NAH** AND JONGHUN CHOE (EQUAL CONTRIBUTIONS)

*Korea Robotics Society
Annual Conference (KROC)*
Pyongyang, S.Korea, Feb.2017

Experience

NAVER LABS Robotics Team

UNDERGRADUATE INTERNSHIP PROGRAM

- Advisor: Dr. Sang-ok Seok (Leader of NAVER LABS, MIT MECHE, Meshworm and MIT Cheetah)
- Team Project: “Wheel Based Robot which can Climb Stairs”
- Personal Project: “Li-Ion Battery Pack PCB for Universal Usages of NAVER LABS Robots”
- Developed and Patented a Passive Novel Structure ‘Tusk’
- Developed and Published Four Successful Stair Climbing Robots

Gyeonggi-Do, S.Korea

Aug.2016 - Feb.2017

SNU Biorobotics Lab

UNDERGRADUATE THESIS

- Advisor: Prof. Kyu-Jin Cho (Professor of Seoul National University)
- Stabilized the Underactuation Mechanism of “SNU Exo-Glove Poly”
- Developed Circuitry for Material Stiffness Identification

Seoul, S.Korea

Mar.2017 - Present

Honors & Awards

2020	Best Student Paper Award , 2020 BIOROB	<i>New York, NY, USA</i>
2020	First Place Presenter, \$500 Award , 2020 MIT MERE	<i>Cambridge, MA, USA</i>
2018	₩1,500,000 Start-Up Investment , SNU Start-Up Camp	<i>Seoul, S.Korea</i>
2017	Excellence Award with ₩1,500,000 , SNU Smart Social Contribution Contest	<i>Seoul, S.Korea</i>
2017	Excellent Paper Award with ₩500,000 Prize , SNU CTL 26th Best Report Contest	<i>Seoul, S.Korea</i>
2017	Young Talent Support Scholarship , NAVER LABS	<i>Seoul, S.Korea</i>
2017	Gwanak Special Intention Scholarship , Hanil Corporation	<i>Seoul, S.Korea</i>
2013	Grand Prize Award , Design, Manufacturing Process and Laboratory Contest	<i>Seoul, S.Korea</i>
2011	First Runner-Up Prize Award , Creative Engineering and Design Contest	<i>Seoul, S.Korea</i>
2009	International Physics Olympiad Candidate , Winter and Summer School Completion	<i>Seoul, S.Korea</i>
2009	Gold Medal Prize , 12 th Korea Physics Olympiad High School Session	<i>Seoul, S.Korea</i>
2009	First Place , Task Assignment Test before High-School Admission	<i>Seoul, S.Korea</i>
2008	Silver Medal Prize , 11 th Korea Physics Olympiad Middle School Session	<i>Seoul, S.Korea</i>

Presentations and Invited Talks

Conference Presentations

- 2021 **ICRA (Virtual)**
- 2020 **Neural Control of Movement** Blitz Talk
- 2020 **BIOROB** Best Student Paper Award, [LINK]
- 2020 **Neuromatch Conference 3.0** [LINK]

Poster Presentations

2022, 2023 **MIT De Florez Competition**

2022, 2023 **MIT MERE**

- 2021 **DO-Sim at RSS (Robotics: Science and Systems)**
- 2021 **Neural Control of Movement**
- 2020 **MIT MERE** First Place Presenter, \$500 Award
- 2020 **IROS Workshop** Impedance Learning, [LINK 1] [LINK 2]
- 2019 **MIT MERE**
- 2019 **MIT Embodied Intelligence Research Mixer**

Invited Talks

- 2022 **KUKA (Virtual)** Robot Control based on Motor Primitives
- 2017 **TEDx SNU Salon** Presenter for TED Session: People who make Something

Patents

- 2017 **KR10-2017-0037517**, Assistive Device for Stair Climbing Robot *Seoul, S.Korea*

Teaching Experience

Teaching Assistant (MIT)

Cambridge, MA, USA

TEACHING ASSISTANTSHIP APPOINTMENT

- 2022 Fall — 2.032 Dynamics, Rating: 6.8/7.0
- 2021 Fall — 2.151 Advanced System Dynamics & Control Overall, Rating: 6.8/7.0

Group and Personal Tutor

Seoul, S.Korea

COURSES FROM SNU LIBERAL EDUCATION

- Tutor of Science and Technology Writing Class - 2017 Autumn, 2018 Spring Semester
- Tutor of Basic Physics Class Students - 2012 Autumn, 2013 Spring Semester
- Tutor of Basic Calculus Class Students - 2012 Spring, 2012 Autumn, 2013 Spring, 2018 Spring Semester

Group Tutor

Seoul, S.Korea

SNU SOCIAL RESPONSIBILITY (SNUSR)

- Group Tutor of Arduino Class

Extracurricular Activity

Voluntary TA for Quals — Dynamics and Controls

Cambridge, MA, USA

MIT MECHE

2021 - Present

Seongnam City Bundang Borough Office

Gyeonggi-Do, S.Korea

SOCIAL SERVICE AGENT

Jun.2014 - Jun.2016

- Bureaucratic Book Binder

SNU in Washington D.C

Washington D.C, U.S.A.

MEMBER

Oct.2013 - Jan.2014

- 'SNU in Series' Global Visiting Program
- Seoul National University Special Talent Training Program

SNU NGO Dream Consultant

Chungju, S.Korea

MEMBER

Aug.2013 - Sep.2013

- Mentor of Chungju High School

Media

MIT News [LINK]

Nov.2020

Yonhap News [LINK]

Oct.2017

Hankyung Economics [LINK]

Jun.2017

Skills

MISCELLANEOUS PROGRAMMING AND COMPUTER SKILLS

- C/C++, Python, R, Bash, LaTeX, HTML, XML, RMarkdown, GIT, Matlab, MuJoCo, ROS, Docker, LabVIEW, KiCAD, Solidworks

LANGUAGE

- English, Korean