Chang Shu

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github | website

Education

King Abdullah University of Science and Technology *2021 - 2023 (expected)*
M.S. in Electrical and Computer Engineering

- GPA: 3.78 / 4.0
- Relevant Courses: Applied Mathematics, Stochastic Processes, Linear Control Systems, Numerical Optimization, Cyber-Physical Systems, Geometry Processing

University of Glasgow *2017 - 2021*
Joint B.Eng in Electronics and Electrical Engineering (with Honours of the First Class)

University of Electronic Science and Technology of China *2017 - 2021*
Joint B.Eng in Electronic Information Engineering

- GPA: 3.78 / 4.0 Overall Ranking: 3 / 257
- Relevant Courses: Calculus, Linear Algebra, Introductory Programming, Probability and Statistics, Introduction to Deep Learning, Dynamics and Control, Signals and Systems, Digital Signal Processing

Honors & Awards

Outstanding Graduate Award *2021*
Awarded to outstanding graduates in Sichuan Province, Top 2%

National Scholarship *2020*
Highest scholarship given by Chinese government, Top 0.2%

Meritorious Winner Award, Interdisciplinary Contest in Modeling *2019*
Awarded to winners of the contest, Top 8%

Glasgow College Academic Scholarship, UESTC *2018 - 2020*
Awarded to students with excellent academic performance, Top 5%

Excellent Student Scholarships, UESTC *2018 - 2020*
Awarded to students with excellent performance, Top 10%

Research Experience

Learning Generalizable Policies for Assembly Sequence Planning [github] *Jan. 2022 - present*
Master Thesis, Advisor: Prof. Shinkyu Park, King Abdullah University of Science and Technology

- Analyze the combinatorial patterns in the assembly sequencing and formulate it as the shortest path problem
- Build a robotic assembly environment in PyBullet to evaluate the geometric feasibility of assembly operations
- Implement graph-based reinforcement learning algorithms to learn generalizable assembly sequence planners

SemMed Knowledge Graph for Interpreting Predictive Models [github] *Apr. 2020 - Aug. 2020*
Directed Research, Advisor: Prof. Fenglong Ma, Pennsylvania State University

- Formulated finding medical factors that contribute to the incidence of a disease as a question-answering problem
- Pre-processed the data by mapping patients' medical records to subgraphs of the SemMed knowledge graph
- Implemented a knowledge-ware graph network for commonsense reasoning to query the causes of the disease

Complex Domain Feature Fusion for Human Activity Recognition with Radar *Aug. 2019 - Mar. 2020*
Research Assistant, Advisor: Prof. Julien Le Kernec, University of Glasgow

- Combined the magnitude and phase information in radar features for human activity classification
- Extracted radar features from data and used them to construct range-Doppler-time point clouds and phase maps
- Designed a deep fusion framework that took point clouds and image data as input and predicted the human actions

Academic Projects

Quad-mesh based isometric mappings [github] *Oct. 2022 - Nov. 2022*

Course Project, Advisor: Prof. Helmut Pottmann, King Abdullah University of Science and Technology

- Aimed to map a quad-mesh based surface into the plane by a conformal and as-isometric-as-possible map
- Converted the geometric constraints of the map into nonlinear least squares that minimized the conformal energy
- Employed the Gauss-Newton method to efficiently compute the desired map

Time Series for Human Activity Recognition with Radar [github] *Oct. 2020 - May 2021*

Undergraduate Thesis, Advisor: Prof. Julien Le Kernec, University of Glasgow

- Extracted range profiles and micro-Doppler spectrograms of human activities from radar signals
- implemented the Bi-LSTM network to leverage the temporal information in radar features for classification
- Presented a detailed evaluation of using recurrent neural networks on radar features in different domains

Autonomous Mobile Robot Design in Webots [github] *Mar. 2020 - June 2020*

Team Design Project, Advisor: Prof. Wasim Ahmad, University of Glasgow

- Designed a ground robot that achieved multiple tasks, such as path tracking, color detection, and crossing the gate
- Built a patio environment and a four-wheeled mobile robot in Webots
- implemented the perceptual, decision-making, and control algorithms for the mobile robot

Teaching Experience

Linear Control Systems (2022 Fall) *Aug. 2022 - Dec. 2022*

Teaching Assistant, King Abdullah University of Science and Technology

Digital Image Processing (2019 Fall) *Oct. 2019 - Nov. 2019*

Teaching Assistant, GEC Academy

Publication

Guo Jiaqi, **Shu Chang**, Zhou Yiyi, Wang Kun, Fioranelli Francesco, Romain Olivier, and Julien Le Kernec, Complex Field-based Fusion Network for Human Activities Classification with Radar, IET International Radar Conference

Skills

Programming Languages	C | Python | Matlab | R | Bash | LaTeX | Verilog
Frameworks & Libraries	PyTorch | TensorFlow | PyG | Gurobi | SciPy | Tianshou | Gym | NetworkX | openmesh
Robot Simulators	PyBullet | Webots | MuJoCo
Laboratory Skill	3D Printing: Ulterimaker | Circuit Design: Cadence
Language Tests	TOEFL: L 29 R 29 S 23 W 27 | GRE: V 159 Q 170 AW 3