ROOZBEH GOLCHIAN KHABAZ

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EDUCATION

- **Tsinghua University** — Beijing, China
  M.Sc. Mechanical Engineering (Focus: Fuel Cell Systems and Control Algorithms)- GPA:3.52/4 — 2021 – 2025
  - **Thesis**: Reinforcement Learning Based Control of Air Supply System in A Proton Exchange Membrane Fuel Cell

- **Beihang University** — Beijing, China
  B.Eng. Mechanical Engineering (Focus: Mechatronics)- GPA: 3/4 — 2016 – 2020
  - **Thesis**: Controlling an Arduino Based Robot Using an EEG Control Pipeline

RESEARCH INTERESTS

- Dynamic Modeling of Power Generating Plants
- Control Algorithm Design
- Reinforcement Learning Optimization Methods
- Alternative Vehicle Propulsion Systems
- Automotive Engineering
- Fuel Cell Engines

RESEARCH

- Ursus Schorling, Roozbeh Golchian Khabaz, Li Jianqiu, Liangfei Xu, Dynamic Simulation of a Fuel Cell Bus: Investigating Inner States of Water Content, and Water Saturation in Different Layers, Conference: 2023, 7th CAA International Conference on Vehicular Control and Intelligence (CVCI), http://dx.doi.org/10.1109 CVCI59596.2023.10397441

- Roozbeh Golchian Khabaz, Ursus Schorling, Liangfei Xu, Zunyan Hu, Chuan Fang, Guoqiang Zhang, Jiangqiu Li, Minggao Ouyang, Reinforcement Learning Based Control of Air Supply System in Proton Exchange Membrane Fuel Cell, Conference : 2025, International Conference on Advanced Vehicle Powertrains (ICAVP) (Accepted)

- Proton Exchange Membrane Fuel Cell Air Supply Control Using a Standalone Deep Deterministic Policy Gradient Control Structure (In Preperation)

TEACHING / WORK EXPERIENCE

- **Teaching Assistant, English Conversational Skills** — Fall 2024
  WANG Haitao — *Tsingua University*
  - Organized different scenarios where practical English conversational skills were developed.

- **English Tutor** — 2016 – 2024
  Self-employed — *Beijing, China*
  - Teaching English to young adults in one-on-one classes, and corrected students' assignments and submissions, as well as preparing teaching materials for each session

PROJECTS

- **Using Grey Wolf Optimizer Algorithm to Implement Nonlinear Conjugate Gradient Descent**: ○
  - The Grey Wolf optimizer algorithm was combined with the main Conjugate Gradient Descent algorithm, which allowed the program to look for a global minimum based on a pre-defined set of inputs.

- **Using MPC Code on MATLAB to Maintain a Safe Distance between a Proceeding and a Following Vehicle** : ○
  - BFirst, the state-space longitudinal model of the vehicle was developed and verified. Then, the prediction matrices were developed so they could be used properly with the controller, and since the model is nonlinear, a Kalman filter was designed to linearize the model at each iteration step of the control horizon. The code was written and implemented in MATLAB/Simulink.

- **Carbon Fiber Composite Monocoque Chassis Design**:

- A set of commercial carbon fiber laminates were selected based on company listings on their website. The selected laminates were layered at a 90-degree angles. Based on the shear and yield strength of the fibers, shear and yield matrices were created in MATLAB, and where used to calculate the strength of the entire composite.

- **Stamping Die Design in SOLIDWORKS**:

  - The individual components of a cold stamping die machine, including the upper and lower die shoes were separately designed and combined together in SOLIDWORKS.

- **Alibaba Global Business Challenge**:

  - Researched solutions to address lack of responsiveness the Japanese market to e-commerce. The provided idea for this issue won the second place award for the competition

SKILLS

Programming Languages: MATLAB, C, C++
Software: MATLAB/Simulink, SOLIDWORK, CATIA, Arduino IDE

LANGUAGE PROFICIENCY

- **Persian**: Native
- **English**: Fluent (IELTS 8.0)
- **Chinese**: Fluent (HSK 4)