Peiyuan Liao (Alexander)

https://github.com/liaopeiyuan/

Email : liaop20@kent-school.edu
Mobile : +1-860-671-7892

Education

- **Kent School** — Kent, CT
  AP Calculus BC, AP Computer Science A, AP Chemistry; GPA: 5.98 (out of 6) — *Aug 2016 – present*

Research Experience

- **First Author** — Kent, CT
  Deep neural network based subspace learning of robotic manipulator workspace mapping — *Sept 2017 - Feb 2018*
  - **ICCAIRO 2018**: Accepted for presentation at ICCAIRO 2018 in Prague, Czech Republic, May 19-21, 2018 (proceedings will be indexed in IEEE and ACM)
  - **Summary**: Using Subspace Learning to approximate the discretization method of workspace evaluation algorithm for serial-link manipulators
- **Patent (CN 201510502664.2)** — Beijing, China
  Rapid Prototyping for Microgravity Environment — *Jan 2015 - Nov 2015*
  - **Summary**: Modifying the structure of an μSL printer so that the feeding of material is done by negative pressure
- **Research Intern** — Beijing, China
  Institute of Chemistry, Chinese Academy of Sciences — *Summer 2017*
  - **Summary**: Environmental Chemistry; Determination of COD in waste water, determination of water hardness through EDTA titration
- **Research Intern** — Beijing, China
  Institute of Automation, Chinese Academy of Science — *Summer 2017*
  - **Summary**: Robot Kinematics; Spatial pose transformation, manipulator forward and invserse kinematics, and joint space trajectory planning

Research Interest

- **Deep Generative Models**
- **Application of machine learning in robotics and chemistry**
- **Manipulator kinematics and dynamics**

Projects

- **A Deep Generative Model for Manipulator Design**: Using deep generative models to provide hints on characteristics of a high-performing manipulator (defined by its Yoshikawa/Asada manipulability measure at a given point)
- **PUMA560**: Interfacing with a PUMA (**P**rogrammable **U**niversal **M**achine for **A**ssembly) 560 at the Kent Pre-Engineering Center and achieve trajectory planning and motion control through VAL II language

Skills

- **Programming Languages**: MATLAB, Python (TensorFlow), LaTeX, Java, Git, (limited knowledge) JavaScript
- **Sceinces**: Deep Learning, Robot Kinematics, General chemistry, (limited knowledge) Multivariable calculus, Linear algebra, Probability theory, Numerical optimization