

# ZIYI LIU

May 1996, Chinese

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Hondsdravweg 17, Zaandam 1508BW



## EDUCATION

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**Master of Science, Delft University of Technology, Netherlands** 9/2019–8/2021 (*Expected*)

- MSc Complex Systems Engineering and Management (Energy & Industry) GPA: 8/10 (A)
- An inter-disciplinary training on renewables, electricity & gas infrastructures, market design and policy analysis for future energy systems; Minor: Economics and Finance
- Sino-Dutch Scholarship awarded by the Dutch Ministry of Education, Culture and Science
- Thesis: Peer-to-peer energy trading system design using game theory and blockchain technology

**Bachelor of Science in Engineering, Shanghai Jiao Tong University, China** 9/2014–6/2019

- B.Sc.Eng. Alternative Energy Science and Engineering, School of Mechanical Engineering
- Study abroad for Life cycle assessment & Energy system analysis at Technical University of Denmark from 8/2017 to 6/2018; Dunedin-Shanghai Sister City Scholarship Programme in 8/2016, New Zealand
- *Honours*: SJTU Outstanding Graduate (Top 20%), Suzhou Education Scholarship (Top 2%), SJTU Merit Student (Top 5%), SJTU Excellent Student Leader, etc

## PROFESSIONAL EXPERIENCES

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**Shanghai Electric, R&D Intern, Shanghai** 2/2019–6/2019

*A Chinese multinational power generation and electrical equipment manufacturing group*

- Worked for the Digital Power Plant project to realize condition monitoring and fault diagnosis of steam turbines through data mining and knowledge discovery
- Responsible for the development of the data preprocessing algorithm & process to address data redundancy, anomaly detection and data imputation with Python

**ENGIE, BD/Analysis Intern, Shanghai** 9/2018–2/2019

*A French multinational energy and services group leading low-carbon power generation and customer solutions*

- Actively tracked market intelligence relevant to solid biomass fuel in China and participated in due diligence of two target M&A firms through desk research and site visit
- Conducted the study on China biomass market from supply sustainability to operation safety, from competitive benchmarking to enabling policies

**Shenzhen Institute of Building Research, Research Assistant, Shanghai** 7/2018–10/2018

*The Shanghai Research&Innovation Center focuses on comprehensive solutions for green and livable cities*

- Worked for a national research program cooperated with Berkeley Lab (US) to investigate city-level solutions for energy saving and carbon reduction
- Specifically compared 8 tools & 9 indicator systems, analyzed 50+ policies' attributes, delivered 100+ pages' report and proposed policy recommendations for cities in China

**Sweco, Project Student, Copenhagen** 2/2018–6/2018

*A European architecture and engineering consultancy company for sustainable cities and communities*

- Analyzed the performance of various utility plants, distribution grids and domestic installations under different district heating temperature
- Developed an Excel-based model to perform system valuation of district heating systems covering financial, environmental, energy and socio-economic aspects

## SELECTED RESEARCH & PROJECTS

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**Back-up PV System Design for the Data Center in Colorado, US** 6/2020–4/2020

*Teamwork, Grade 9.5/10*

*TU Delft: Photovoltaic Systems*

- Designed a PV system with a battery bank and simulated the operation with Matlab to guarantee the supply reliability during blackouts and showcase the financial feasibility. *Report*

**Conceptual design of solar parks at parking terrains in Rotterdam** 6/2020–4/2020

*Teamwork, Grade 9/10*

*TU Delft: Design Project*

- Conducted technical, institutional and process designs from system requirements to mock-up artefacts, including PV system modelling, DBFM and PPA contract, and tender process for the municipality. *Report*

**Integrating wind farms and electricity storage towards 2030 goal in California** 4/2020–2/2020

*Group Leader* TU Delft: Design of Integrated Energy Systems

- Integrated four energy system models to simulate the power market in 2030 scenario, conduct financial evaluation for renewable energy projects and suggest policy interventions. *Presentation*

**Creating a level playing field for Mobility as a Service in Netherlands** 1/2020–11/2019

*Teamwork* TU Delft: Managing Multi-actor Decision Making

- Identified the key dilemmas towards the development of MaaS and set up the negotiation principles & agenda to coordinate the interest conflicts between public and private sectors. *Presentation*

**An in-depth Analysis of Key Design Parameters of the Silicon Solar Cell** 2/2017–1/2018

*Research Assistant, SJTU Energy Research Institute* Supervisor: Prof. Qingchun Yu

- Utilized PC1D simulation program to optimize the key design parameters of the silicon solar cell and analyzed the carrier transmission mechanism behind the results. *Publication*

**Life Cycle Assessment of Decentralised Toilets** 9/2017–12/2017

*Teamwork* Proposed by NP Flint, Denmark

- Quantified the environmental impact of decentralised toilets in comparison with flushing and composting toilets with SimaPro, thus identifying the hotspot stage to improve current design. *Report*

## SKILLS

**Technical:** Energy Systems Modeling, Data Analysis, Feasibility Study, Life Cycle Assessment

**Program:** MS Office, Python, L<sup>A</sup>T<sub>E</sub>X, MATLAB, GAMS, SimaPro, Photoshop, Premiere

**Language:** English - IELTS 7.0, Mandarin (Native)

## MISCELLANEOUS

**Cofounder**, SJTU Sustainable Campus Initiative Student Association 3/2018–6/2019

**President**, SJTU International Communication Student Association (*Over 60 members*) 5/2016–6/2017

Palliative Care Volunteer, Shanghai Longhua Hospital 9/2015–1/2016

**Hobbies:** Photography, Travelling, Swimming, Badminton, Singing

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## 教育经历

- 荷兰代尔夫特理工大学, 理学硕士, 复杂系统工程与管理 (能源 & 工业) 2019.9–2021.6 (预计)
- GPA: 8/10 (A); 中荷奖学金 (Sino-Dutch Scholarship), €16113/年
  - 研究未来能源系统的市场设计、政策制定和管理咨询, 重点为可再生能源、电力、天然气行业
  - 辅修: 经济与金融; 硕士论文课题: 基于博弈论和区块链的分布式能源 P2P 交易系统设计
- 上海交通大学, 工学学士, 机械与动力工程学院新能源科学与工程 2014.9–2019.6
- 所获荣誉: 上海交通大学优秀毕业生 (前 20%), 校三好学生, 校优秀团干部, 苏州育才奖学金 (校一等, 前 2%), 第二届大学生头脑奥林匹克创新比赛三等奖等
  - 海外交流: 丹麦技术大学交换生, 修读可持续能源系统硕士课程 (2017.8–2018.7); 新西兰达尼丁-上海友好城市教育奖学金见习项目 (2016.8)

## 实习经历

- 研发实习生, 上海电气电站集团汽轮机厂, 上海 2019.2–2019.6
- 中国大型综合性装备制造集团, 主导产业聚焦能源装备、工业装备、集成服务
- “数字化电厂系统设计及实现”课题组成员, 应用数据挖掘开发汽轮机状态监测和故障诊断程序
  - 开发针对汽轮机测点数据的前处理流程和算法, 包括数据去冗余、异常检测和坏点预测替换等
- 商业分析实习生, ENGIE 中国, 上海 2018.9–2019.2
- 法国能源领域跨国集团, 全球财富百强企业; 提供可持续、低碳的综合能源解决方案
- 在 Global Energy Management (GEM) 部门进行中国生物质成型燃料市场的研究, 进行实地考察、专家访谈、文献阅读等, 形成阶段性调研报告
  - 对全产业链进行可行性分析, 从原料供应的稳定性、工厂运营安全性, 到下游需求、竞争对手、政策环境等, 阐述市场潜力和风险, 辅助投资决策
- 研究助理, 深圳市建筑科学研究院上海研创中心, 上海 2018.7–2018.10
- 国家级高新技术企业, 致力于绿色生态城市建设全过程的技术服务与咨询
- 参与政府间国际科技创新合作重点专项 (中美) “城市节能和低碳解决方案工具”研究课题, 从国际经验出发探索符合中国低碳城市建设的政策建议
  - 对比研究八款软件工具, 九套指标体系以及分析 50 余项相关政策属性, 提出工具开发的逻辑结构和政策推荐的合理框架, 撰写课题阶段性研究报告 (3 万余字)
- 学生课题, Sweco Denmark, 哥本哈根 2018.2–2018.6
- 欧洲跨国工程咨询公司, 活跃于建筑、能源、基建、电力、环境等领域
- 定量分析多种热生产技术、输热管道、用户侧装置在传统、低温、超低温三种情景下的性能变化, 基于 Excel 开发区域供热评估工具
  - 从经济、环境、能源、社会经济多方面对系统在不同温度情景下进行比较评估, 辅助制定合理的定价、补贴、税务等经济策略, 促进可持续供热系统转型

## 科研及项目经历

- 面向数据中心备用能源的光伏系统设计 6/2020–4/2020
- 3 人团队, 成绩 9.5/10 TU Delft: Photovoltaic Systems
- 根据数据中心负荷需求和所在地区日照辐射, 选择并设计光伏阵列、逆变器、储能电池等组件
  - 基于 Matlab 模拟光伏系统全年运行情况以保证电力的稳定供应, 并计算投资回报周期 [报告]
- 面向鹿特丹停车场的光伏公园概念性设计 6/2020–4/2020
- 5 人团队, Grade 9/10 TU Delft: Design Project
- 从技术、政策和项目管理多角度分析潜在问题、分解系统需求并提出解决方案
  - 实现光伏系统、电力购买协议、投标方案, PPP 项目合同等的设计与验证 [报告]
- 2030 能源情景下的风电和储能项目可行性评估 4/2020–2/2020
- 组长, 5 人团队 TU Delft: Design of Integrated Energy Systems

- 综合四种能源系统模型展望 2030 年的美国加州电力市场，包括投资组合、电价和政策环境
- 为风电和储能项目进行可行性评估和投资建议，并提供政策方案以促进能源目标的实现 [PPT]

基于 PC1D 的硅太阳能电池关键设计参数研究 2017.2–2018.1

研究助理, 上海交通大学能源研究院 导师: 余晴春副教授

- 运用 PC1D 仿真模拟程序, 寻找硅太阳能电池设关键计参数最优的数量级, 包括 N 型发射极和 P 型基极掺杂浓度, N 型发射极和 P 型基极厚度, 并分析其背后的载流子传输机制
- 仿真结果与商用光伏产品对比, 验证了结果的准确性和 PC1D 的可靠性
- SCI 论文发表: <https://doi.org/10.1016/j.ijleo.2018.02.102>

2018 中国国际太阳能十项全能竞赛 2016.3–2017.4

能源系统部成员, 上海交通大学-美国 UIUC 联合竞赛队

- 该竞赛旨在设计并实际建造一栋完全由太阳能供能的双层住宅, 构建形成社区智能微网
- 主要负责基于建筑设计图、能耗分析数据的光伏系统建模仿真, 阵列排布 (工具 PVsyst) [报告]

多种 BIM (建筑信息模型) 专业软件协同设计研究 2016.2–2017.3

项目组组长, 上海交通大学 BIM 研究中心 导师: 邓雪原副教授

- 负责上海交通大学图书信息楼机电部分 (暖通、给排水、电气) BIM 建模, 同时协调建筑设计、土木结构模型进度, 探索基于 BCF 和 IFC 标准的跨软件平台的信息交流和协同设计
- 和团队获得第五届“龙图杯”全国 BIM 大赛一等奖 (共 434 支参赛队)

## 专业技能

能源系统建模, 数据分析, 可行性研究, 生命周期评估, 光伏系统设计

程序软件: MS Office, Python, MATLAB, PVsyst, L<sup>A</sup>T<sub>E</sub>X, GAMS, SimaPro, Photoshop, Premiere

语言水平: 雅思 7.0, CET 6 级, 普通话二级甲等

## 活动经历

联合创始人, 上海交通大学“绿蕉”可持续校园倡议组织 (推广和践行 SDGs) 2018.3–2019.6

会长, 上海交通大学国际交流协会 (成员 60+, 校星级社团) 2016.5–2017.6

昆山杜克大学国际环境政策项目 (iMEP) 夏令营 2017.8

上海中医药大学附属龙华医院守望临终关怀志愿者 2015.9–2016.1

上海市启音学校 (聋哑教育机构) 志愿助教 2015.4

爱好: 摄影, 游泳, 羽毛球, 旅行博客 <http://www.mafengwo.cn/u/memory.html>