Ziyi Liu

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Education

Shanghai Jiao Tong University, GPA: **84**/100, Upper division: **87**/100 *9/2014–6/2019 (Expected)*

Candidate for B.S.E in Alternative Energy Science and Engineering, School of Mechanical Engineering

- ***Selected Core Courses:*** Photovoltaics Science (A), Wind Energy Principle and Technology (A), New Energy Systems and Their Applications (A^+), Energy Economics (A), Energy Chemistry (A), Fundamentals of Management (A), Calculus II (A^-), Probability and Statistics (A^-), etc.

Technical University of Denmark, Exchange Student, Copenhagen *9/2017–6/2018*

- Acquired 55 ECTS under MSc Sustainable Energy–System Analysis Track: 42003 Energy economics, markets and policies, 42002 Modelling and analysis of sustainable energy systems using operations research, 41416 Energy systems - analysis, design and optimization, 42372 Life cycle assessment of products and systems

Otago Polytechnic, Internship Programme, Dunedin, New Zealand *8/2016*

- Represented Shanghai Jiao Tong University to participate in the The Dunedin-Shanghai Sister City Education Scholarship Programme sponsored by Dunedin City Council

Awards

Shanghai Jiao Tong University Suzhou Education Scholarship (Top 3%) *10/2017*

Ranking 1/28 in the major, 9/441 in School of Mechanical Engineering during 2016-2017 academic year

"Merit Student" of Shanghai Jiao Tong University (Top 5%) *10/2017*

The Excellent Student Leader of Shanghai Jiao Tong University *5/2017*

Professional Experiences

Research Intern, *Shanghai Electric, Shanghai* *12/2018–Present*

A Chinese multinational power generation and electrical equipment manufacturing company

- Worked for the Smart Power Plant project to realize fault prediction & diagnosis for steam turbines
- Responsible for the development of big data preprocessing algorithm and system

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

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

- Conducted the study on China biomass fuel market, especially solid biomass for heat & power at Global Energy Management (GEM) China business division
- Investigated market potential and risks of solid biomass from supply sustainability to operation safety, from competitive benchmarking to enabling policies

Research Assistant, *Shenzhen Institute of Building Research, Shanghai* *7/2018–11/2018*

The Shanghai Research&Innovation Center focuses on studying and consulting about sustainable cities and communities

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

Research Work

Valuation of the System Advantages of Lower District Heating Temperatures *2/2018–6/2018*

Individual Project, DTU Mechnical Engineering & Sweco *Supervisor: Prof. Brian Elmegaard*

- Analyzed the performance of various utility plants, distribution grids and domestic installations under different district heating (DH) temperatures
- Developed an Excel-based model for *Sweco* to perform system valuation of DH covering financial, environmental, energy and socio-economic aspects. *Report*

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*

- Simulated and obtained the optimal magnitudes of silicon solar cell key parameters with PC1D program
- Analyzed the carrier transmission mechanism behind and compared results with a commercial product so as to verify the reliability of PC1D.
- ***Publication:*** *https://doi.org/10.1016/j.ijleo.2018.02.102*

The Study of Collaborative Design with Multi-disciplinary BIM Software *2/2016–3/2017*

Team Leader, SJTU BIM Research Center *Supervisor: Prof. Xueyuan Deng*

- Took charge of HVAC modelling of SJTU library and coordinated architecture and structure modelling
- Explored the workflow communication among multiple software based on BCF and IFC standards
- Won the First Prize out of 434 competitors in The 5th National Building Information Modeling Contest

Course Projects

Optimal Dispatch of Heat and Power Producer in the Day-ahead Market *11/2017–12/2017*

Group Leader *Proposed by Ea Energy Analyses*

- Achieved optimal energy dispatch of various utility plants, i.e. CHP, NG boiler, solar plant and heat storage, with GAMS under day-ahead electricity market to serve the heat load of a large industry. *Report*

The Photovoltaic System Design for a 100% Solar-powered House *9/2016–1/2017*

Solar Decathlon China 2018 *Supervised by Prof. Xiaoqiang Zhai*

- Designed and simulated the PV system applied in a 100% solar-powered house with PVsyst including plane orientation & tilt, module & inverter selection and array layout for Team SJTU-UIUC.

Interdisciplinary Contest in Modeling *2/2016*

96-hour International Competition *Honorable Mention*

- Applied BP Neural Network and GM(1,1) model to predict and assess water resource situation in Shenyang based on historical data from 2002 to 2014 and formulate a 2016-2030 Plan to mitigate water scarcity. *Solution*

Skills

Technical: Energy System Modeling, Feasibility Study, Life Cycle Assessment, Data Analysis, PV System Design
Software: LaTeX, GAMS, SimaPro, PVsyst, R, MS Office, Photoshop, Premiere, etc.
Language: English - IELTS 7.0 (L:7.5 R:8.5 W:6.5 S:6.0)

Miscellaneous

Cofounder, SJTU Sustainable Campus Initiative *(Promoting and practicing the SDGs)* *3/2018–Present*
Oikos Develop Prize - Social Entrepreneurship Competition at Copenhagen Business School *5/2018*
Chr. Hansen Sustainable Development Case Competition *4/2018*
President, SJTU International Communication Association *(Over 60 members)* *5/2016–6/2017*
International Master of Environmental Policy Summer Camp in Duke Kunshan University *8/2017*
Palliative Care Volunteer, Shanghai Longhua Hospital *9/2015–1/2016*
Hobbies: Photography, Travelling, Swimming, Badminton, Singing

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教育经历

上海交通大学　机械与动力工程学院 2014.9–2019.6（预计）

- 新能源科学与工程专业　GPA: 3.62/4.3
- 所获荣誉：上海交通大学三好学生，上海交通大学优秀团干部，苏州育才奖学金（1 万元，前 3%），新西兰达尼丁-上海友好城市奖学金，第二届大学生头脑奥林匹克创新比赛三等奖等

丹麦技术大学　交换访学 2017.9–2018.6

- 修读四门 MSc Sustainable Energy 培养计划课程，专注能源系统建模分析，能源经济、市场与政策，生命周期评估，并完成一项 Bachelor Project；共获得学分 55 ETCS

新西兰奥塔哥理工学院　短期交流 2016.8

- 代表上海交通大学参加新西兰达尼丁-上海友好城市教育奖学金项目；在访问学校能源部门见习，进行奥克兰在建校区 G 区的屋顶光伏的阵列设计和产品选择工作

科研及项目经历

低温区域供热系统评估 2018.2–2018.6

独立课题，丹麦科技大学机械工程学院 & Sweco 工程咨询公司　导师：*Brian Elmegaard* 教授

- 定量分析多种热生产技术、输热管道、用户侧装置在不同热载体温度下的性能变化
- 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传统、低温、超低温三种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，以促进向可持续性供热系统转型【*Report*】

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*

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，进行项目管理
- 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）【*PPT*】

实习经历

研究助理，上海电气电站集团汽轮机厂，上海 2018.12--至今

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

- 参与“数字化电厂系统设计及实现”课题，通过数据挖掘以实现汽轮机故障预测和诊断
- 负责汽轮机运行大数据前处理系统的算法和界面开发

商业分析实习生，ENGIE 中国，上海 2018.8–2019.2

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 2018.7–2018.11

国家级高新技术企业，提供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）

专业技能

能源系统建模，Python 数据分析，生命周期评估，光伏系统设计

软件操作: LaTeX, GAMS, SimaPro, PVsyst, MS Office, Photoshop, Premiere, ect.

语言水平: 雅思 7.0 (L:7.5 R:8.5 W:6.5 S:6.0)，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--至今

Oikos Develop Prize 2018 社会创业竞赛 2018.5

Chr. Hansen 可持续发展案例竞赛 2018.4

会长，上海交通大学国际交流协会（成员 60+） 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）志愿者 2015.4

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