Kevin Wenliang Li (kevinli@gatsby.ucl.ac.uk)

Education

University College London, Gatsby Computational Neuroscience Unit, PhD candidate **2015 – present**

- Supervised by Maneesh Sahani (primary) and Peter Dayan (secondary)
- Projects include models for perceptual learning, statistical inference and neural implementation using nonlinear moments, deep kernel methods for modelling density and goodness-of-fit tests.

University of Cambridge, Trinity College Information and Computer Engineering **2010 - 2014**

- Integrated B.A. (1st Hon.) and M.Eng. (Exceptional), scholarship £18,510 p.a. for 4 years, College Senior Scholar
- Ranked in top 10 among ~300 students for 1st, 2nd and 4th years, Product Design Competition price winner
- Classes: Pattern Processing, Adv. Communication and Coding, Optimisation, Computer Vision, Machine Learning, Speech and Language Recognition, Computational Neuroscience
- 4th Year Project: building a statistical model for large population neurons using Hidden Markov Model. Given the neural spike trains, infer the hidden neural membrane potential assumed density filtering & smoothing. Learning the model parameters using the EM algorithm, direct optimisation and a novel iterative method. The model consists of a two-layer HMM with discrete and continuous latent variables. Supervised by Dr Máté Lengyel
- Fully funded PhD offers: UCL Gatsby Comp. Neurosci., Oxford Stats., Cambridge Comp. & Bio. Learning in 2014

Massachusetts Institute of Technology (1 Year undergraduate exchange) **2012 - 2013**

- GPA: 4.9/5.0, Cambridge-MIT Exchange in Electrical Engineering and Computer Science. Lab Assistant
- Classes: Algorithm, Computer Structure, Applied Probability, Signal Processing, Communication and Control
- Digital Image Project: Grade A+, shadow removal, more effective than published methods, taught by Prof Jae Lim
- Complex Network Project: Grade A, a model of spread of public interest, taught by Prof D. Gamarnik

Experience

Tsinghua University

Research Intern, supervised by Prof Funchun Sun at National Key Lab of Intelligent Systems **Dec 2014 – present**

- Collaborated with post-doc on planning human-like grasps for variety objects, paper submitted to IROS
- Proposed non-parametric 3D object representation effective for identification and part segmentation
- Achieved human-like grasps on a variety of complex objects rarely attempted in the literature at fast speed

Microsoft Research Cambridge **July - Oct 2014**

Research Intern, supervised by Sebastian Nowozin (Machine Learning & Perception Group)

- Researched and developed an algorithm and a tool that extracts complex road networks from satellite images
- Designed features for pixel and road classification, built a spatial marked point process model of line segments to impose spatial constraints with novel interaction potential functions, ran MCMC with novel proposals distributions, learned parameters using pseudo-likelihoods, made single decision using scoring and min. expected loss
- Wrote paper with supervisors for publication, tool to be demoed at conferences, MS hackathon prize winner

Microsoft Asia R&D **Jun - Aug 2013**

Program Manager Intern, Commerce Billing team

- Collaborated with managers from Shanghai and Redmond, led a feature team of three interns to carry out tasks/features, set deliverables and milestones for a large project, reported progress to non-technical clients
- Developed a monitoring system for the commerce pay-out service using SSRS and Excel PivotTable, final product enabled system exception tracking, faster incident reaction and more informative customer service

MIT Jensen Research Group **Jan - May 2013**

Undergraduate researcher, embedded system in C/C++ for automated chemical process

- Object-oriented programming on Arduino microprocessor, treating processes and physical components as objects
- Designed the control signal circuit for all mechanical components including switches, pumps, flow meters, SD Card reader, buttons and a LCD screen using innovative layout and control algorithms

Swiftkey (software start-up, applications topping Android Market) **Jul - Sept 2011**

Language Processing Engineer Intern, concentrated on Asian languages using C++ and Ruby

- Led non-whitespace (CJK) languages research of the company, programmed a Chinese input prototype capable of Pinyin input and next-word prediction based on input context using the Swiftkey's engine
- Invented and implemented a Chinese Pinyin tokenisation algorithm and a CJK character sequencing algorithm

Skills

- **Programming:** C/C++, Python, Julia, MatLab, Ruby, HTML/CSS, JavaScript, SQL
- **Languages**: English – fluent Mandarin – native Trained in English-Chinese translation and interpretation

Leadership Activities

Cambridge University Consulting Initiative ~15 Members **Aug 2013 - May 2014**

Founder and President, provided technical and management consulting to university student societies

MIT Club for Chinese Undergraduates, ~100 members **Jan - May 2013**

Co-President, invited by the executive board for organisational reform and transition

Other societies include CU Chinese Orchestra, CU Mandarin Debating Society, MIT Asian Dance Team, etc.

李文亮（kevinli@gatsby.ucl.ac.uk)

教育经历

伦敦大学学院，盖茨比计算神经中心，博士在读 **2015 至今**

- 导师 Maneesh Sahani（第一）和 Peter Dayan（第二）
- 项目涉及知觉学习，统计推断及其神经实现方法，内核方法等

剑桥大学，三一学院，信息与电脑工程 **2010 - 2014**

- 本硕连读（M.Eng.，B.A.），一等学位，每年获得奖学金£18,510，高级学者荣誉
- 本年级全系（~300 人）排名：大一第五，大二第三，大四前十（含主观），系“产品设计竞赛”获奖者
- 相关课程：模式识别，高级通信与编码，最优化，计算机视觉，机器学习，语音及语言识别，计算神经学
- 毕业课题：为大脑神经系统的电活动建立统计模型。模型构架为双层隐马可夫模型，包含离散和连续的隐变量。根据多个神经元的发放信号，使用直方图方法、假设密度滤波和平滑进行推断（类卡尔曼过滤和平滑）；用期望-最大化方法学习模型参数。提出新的学习算法并产出更优的学习结果。导师 Máté Lengyel（副教授）
- 全奖博士录取：伦敦大学盖茨比计算神经学，牛津大学统计科学，2014 年剑桥大学计算与生物学习

麻省理工大学（一年交换项目） **2012 - 2013**

- GPA: 4.9/5.0, 剑桥-麻省理工交换项目，就读于电子工程及计算机系
- 相关课程：计算机结构，应用统计，信号处理、通信和控制论，算法导论
- 数码图像处理课题：A+等，黑白图像阴影去除，效果与已发表的方法有可比性甚至更优
- 复杂网络课题：A 等, 受 preferential attachment model 的启发，提出一种新的图模型来模拟信息的大众传播

工作经历

清华大学

研究实习生，智能技术与系统国家重点实验室，导师：孙富春 **2014.12 至今**

- 与博士后共同研究智能抓取规划，将人的抓取经验植入自动化系统中，论文已提交至 IROS
- 提出非参数化的三维物体表达方式，有效应用于复杂物体的识别与抓取部位分隔，并设计具体实施流程
- 在多种罕见于文献的复杂物体上实现类似人的机器人抓取方式，速度与其他方法比有明显提升

微软研究院（剑桥，MSR Cambridge） **2014.7-10**

研究实习生，机器学习与认知组（Machine Learning and Perception），导师：Dr Sebastian Nowozin, Dr Sadia Ahmed

- 用空间随机点过程来进行卫星图片公路网识别。设计单点势（基于地图特征）和多点势（平行和连接关系），并用马可夫链蒙特卡洛平行抽取公路样本，提出新的建议分步。
- 提出公路网之间的距离方程，并用实验最小损失方法来确定最好的样本。论文发表准备完毕等待实验结果。
- 参与全公司的编程马拉松，与团队将高斯过程和 TrueSkill™ 模型用于游戏数据，获剑桥实验室冠军。

微软中国，上海研发中心 **2013.7-8**

项目管理实习生，Azure 网络商业组

- 与在上海和美国总部的上级领导合作，理清产品需求。带领产品研发小组完成各项任务，设计程序构架，推动项目进程，参与发现问题、解决问题的整个步骤
- 开发出一套支付流程监督系统，全面监督转账服务的运行状况，最终产品为微软提供了更快的漏洞侦测、更快的事件反应和更优质的客户服务
- 审查数据库询，询问多个微软员工以收集信息，为信息安全部门提供必要的参考依据

麻省理工 Jensen 实验室，仪器开发 **2013.1-5**

本科研究员（兼职），与博士生合作开发一套全自动合成系统，负责电子控制系统的研发

- 嵌入式设计，产品让化工科研人员快速合成必须的化学物质，比传统手动方法快大约 20 倍
- 使用 Arduino 控制器，用类 C 语言编写控制代码来控制液泵、阀门，并从密度表、流速表等仪表读取数据，现实在液晶屏上并储存在储存卡中，可以用按钮来选择要合成的化学品

Swiftkey Ltd, London，2009 年成立的创业公司，开发的输入法应用一度在安卓市场排名第一 **2011.6-9**

语言处理部实习生

- 领导非空格语言的研究，利用公司内部已有技术，编写了中文输入法原型，采用拼音输并可根据之前输入的字预测下一个字（n-gram 模型）。对亚洲文字进行过滤、排序和统计处理，生成 n-gram 语言模型
- 发明了一个简易分隔拼音的算法，可以从一个连续的英文中分隔每个字的拼音

领导活动

剑桥大学社团咨询计划, ~15 人 **2013.8-2014.4**

成立者及社长。为剑桥学生社团提供各项咨询服务，获得剑桥 Judge 商学院教授支持

麻省理工中国学生俱乐部，~100 人 **2013.1-2013.5**

联合主席。受邀请参与社团改革的领导。联合哈佛大学、卫斯理学院的中国学生会举办学术和娱乐活动

剑桥大学华语辩论社，~20 人 **2013.1-2013.5**

联合成立者、*队长*。获 2011 年全英华语辩论赛亚军，2012 年冠军，共 12 只队伍参赛

其他社团：剑桥大学华乐团、剑桥大学学生学者联谊会，麻省理工大学亚洲舞蹈团等

其他技能

- **编程**：C/C++, Python, Julia, MatLab, HTML, CSS, JavaScript, SQL Office Excel (PivotTable)/PowerPoint,
- **语言**：中文-母语，英语-流利，法语-基本，接受上海外国语学院中英高级翻译/口译训练，有翻译作品出版