

# 张宁欣

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## 教育经历

芝加哥大学, 芝加哥, 伊利诺伊州	09/2023-12/2024
• 专业: 计算与应用数学硕士	GPA: 3.9
• 相关课程: 机器学习/算法/应用优化/非线性优化/金融数据科学	
北京大学, 北京	03/2021-07/2021
• 光华管理学院访学项目: 华人留学生知中国	
• 相关课程: 金融中的数学方法/JavaScript和Html网页开发/AI和经济学/中国金融/新媒体营销和广告/消费者行为	
弗吉尼亚大学, 夏洛茨维尔, 弗吉尼亚州	09/2019-05/2023
• 专业: 数学(科研方向) & 应用统计学(数据科学方向)	GPA: 3.8
• 相关课程: 机器学习/数理统计/回归分析/数据分析/数据可视化与管理/应用线性模型/运筹学/高等线性代数/数值分析/随机过程	

## 技能及奖项

编程语言: Python, R, SAS, SQL, Mathematica, MATLAB

工具包: Pandas, NumPy, Scikit-Learn, TensorFlow, PyTorch, Matplotlib, Seaborn, Plotly

Coursera证书: IBM数据科学专项课程 / 谷歌数据分析专项课程

2022届弗吉尼亚大学Datathon 数据比赛第一名	10/2022
参与南部统计委员会(SRCOS)统计本科研究项目(SURE)夏季研究会议并获得旅行资助	10/2022
参与杜克大学女性科研会议(GROW)并获得旅行资助	10/2022

## 实习经历

科研实习生   Jefferson Area Board for Aging, 夏洛茨维尔	05/2022-07/2022
• 主导针对社区老年群体的市场调研, 以确定潜在技术服务需求, 运用50题问卷调查收集老年群体的使用习惯及技术产品偏好数据	
• 对2000余份调查问卷进行数据可视化处理, 洞察并分析老年护理市场趋势	
• 记录及分析100多名慢性病自我管理研讨会参与者反馈, 制定Excel数据管理模板并被公司广泛运用于后续数据记录	
活动实习生   老虎证券, 北京	06/2021-08/2021
• 执行交易数据分析, 应用SQL与Python处理逾10000客户记录, 识别优惠券使用模式及其对交易行为的影响	
• 设计A/B测试, 评估不同客户群体的存款转化率, 基于统计假设检验的结果提供数据支持的优化策略	
• 通过对行业领先企业如富途证券和雪球进行竞品分析, 优化公司市场策略及推荐计划	
音乐部门数据审核实习生   网易, 杭州	09/2020-12/2020
• 负责20,000条记录的数据清洗工作, 运用Excel功能(如VLOOKUP)建立标准操作流程, 提高数据录入效率, 降低后续清洗工作量	
• 通过评估、打分1万余个搜索查询请求, 并准确标注2000多个数据点, 提升网易音乐搜索引擎的意图识别能力, 搜索精确度提高10%	

## 科研经历

火灾对树种间相互作用的影响下的树种种群研究 (Python)	05/2022-至今
• 研究野火对树种群落的影响, 尤其是特定树种对火灾的生殖与生存依赖性, 利用常微分方程模型分析树种与野火之间的互动关系	
• 建立树种群落在生长与野火交替期间的动态模型, 通过LotkaVolterra模型、Lyapunov函数、随机野火模型等方法, 识别竞争物种间的潜在平衡状态	
• 提出火灾期间树木死亡的线性及二次模型, 并通过Python迭代运算对比分析结果	
定理证明器相关研究 (Lean4)	05/2022-01/2024
• 共同撰写了一篇关于在Lean 4中形式化有限拉姆齐理论的论文, 并投稿至2024年NASA Formal Method国际会议(NFM)	
• 通过开发新策略和小部件解决了形式化组合学和图论证明中的挑战, 提高了交互式定理证明器在复杂数学领域的可用性	
教育科技实施研究 (R, STATA)	08/2022-04/2023
• 进行数据驱动的研究, 分析影响教师及学生科技互动的显著因素, 并就此撰写研究论文; 该论文经过同行评审后, 以第一作者的身份在SITE 2023国际会议的最终论文集中发表, 全文可在LearnTechLib.org网站获取	
• 建立线性及逻辑回归模型, 针对教育者在实施布鲁姆分类法最高层次活动时的行为模式进行分析。研究基于3000多份教育技术调研数据, 旨在深化对教育技术应用的理解。	
Spotify歌曲流行度预测 (Python)	08/2022-12/2022
• 利用逻辑回归、LDA、决策树等机器学习模型构建歌曲流行度预测器, 并通过交叉验证和ROC曲线分析进行模型验证与性能提升	
• 应用缩减方法如岭回归和套索回归细化模型, 实现预测器优化, 提高歌曲流行度预测准确率达58.5%	
社交媒体情感分析 (R, Python)	08/2022-12/2022
• 开发基于Python的数据爬虫工具, 共收集350+数据点, 为合作伙伴Partnership for Strategic Impact (PSI) 提供数据支持, 并通过机器学习模型分析社交媒体互动的关键决定因素	
• 运用词汇化和词干提取技术将社交媒体文本转化为可分析数据, 应用回归模型将模式与社交媒体影响指标如点赞和评论量关联起来	
• 为PSI提供详细的分析报告, 提出了基于精细调整的预测模型的数据驱动建议, 模型达到均方误差(MSE)约0.4, 使PSI的社交媒体互动率增加了37.3%	
课外活动经历	
学生助理   北京大学光华管理学院暑期项目, 北京	03/2021-07/2021
• 带领团队负责暑期项目“Doing Business in China (DBIC)”的宣传工作, 设计海报和横幅等宣传材料	
副主席   DreamCorps International at UVA, 夏洛茨维尔	09/2019-06/2022
• 管理学生自主组织的非营利公益组织, 通过组织桌游比赛和小吃节等活动和运营剧本杀工作室筹集资金, 资金全部捐赠于中国山区的图书馆建设	
• 推出“婚姻契约”匹配活动, 并利用R对参与者的答复进行精确数据分析	
其他: 美国数学协会(会员); Putnam数学竞赛2022(参赛者); UVA CSSS篮球队(女篮创始人和男篮经理)	

# NINGXIN ZHANG

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## EDUCATION

**University of Chicago**, Chicago, IL *Expected December 2024*

• *M.S. in Computational and Applied Mathematics* GPA: 3.9

• **Relevant courses:** Machine Learning, Modern Applied Optimization, Algorithm, Data Science Tools for Finance

**University of Virginia**, Charlottesville, VA *September 2019 - May 2023*

• *B.A. in Math (Graduate Preparatory Concentration) & Applied Statistics (Data Science Concentration)* GPA: 3.8

• **Relevant courses:** Machine Learning, Data Analysis w/ Python, Numerical Analysis, Stochastic Processes, Data Visualization

## SKILLS

**Programming Languages:** Python, R, SAS, SQL, Mathematica, MATLAB

**Packages:** Pandas, NumPy, Scipy, Scikit-Learn, TensorFlow, PyTorch, Matplotlib, Seaborn, Plotly

**Coursera Certification:** IBM Data Science Specialization(Python, SQL), Google Data Analytics Specialization(R, SQL, Tableau)

## INTERNSHIPS

**Jefferson Area Board for Aging** **Charlottesville, VA**

*Research Intern* *May 2022 - July 2022*

- Engineered a detailed market study targeting aging individuals within the community to identify potential tech services, utilizing a 50-question survey to gauge usage patterns and preferences regarding technical products
- Performed in-depth **data visualization** on over 2,000 survey responses to identify potential technological assistance in elderly care
- Enhanced **data management** efficiency by developing an Excel template, now used organization-wide, for standardizing the recording and analysis of feedback from 100+ participants in the Chronic Disease Self-Management Workshop

**UP Fintech Holding Ltd**

**Beijing, China**

*Campaign Intern*

*June 2021 - August 2021*

- Executed a transactional data analysis utilizing SQL and Python to process and analyze over 10,000+ customer records, identifying patterns in coupon usage and its effects on transaction behaviors
- Designed **A/B testing** to evaluate deposit conversion rates across customers segments, providing **data-driven recommendations** for optimizing coupon strategies through **statistical hypothesis testing** outcome
- Transformed the company's campaign strategy and management of the Referral Program by conducting a competitive analysis, benchmarking against top industry players

**NetEase Inc.**

**Hangzhou, China**

*Data Reviewing Intern for Music Division*

*September 2020 - December 2020*

- Spearheaded data cleansing for a 20,000+ entry alias database in Excel using advanced functions like VLOOKUP, establishing standard operating procedures that enhanced data entry efficiency and reduced future clean-up efforts.
- Enhanced the NetEase Music search engine's intent recognition by evaluating and scoring 10,000+ queries, and by accurately labeling 2,000+ data points, achieving a 10% increase in search precision

## RESEARCH

**Modeling Fire-induced Tree Mortality** ( Python ) *May 2022 - Present*

- Explored the impact of wildfires on tree populations, particularly the dependence of certain species on fire for reproduction and survival, utilized **Ordinary Differential Equation (ODE)** models to analyze the interaction between tree species and wildfires
- Developed models utilizing alternating growth and wildfire periods to depict population changes and identify potential equilibriums among competing species, using the Lotka-Volterra model, Lyapunov function, stochastic wildfire model and other relevant models
- Proposed linear and quadratic models for tree mortality during wildfire period, compared the result by running iterations in Python

**Edtech Implementation Research** ( R, Stata )

*August 2022 - April 2023*

- Conducted a data-driven analysis to identify factors that significantly influence teacher-student engagement with technology, culminating in a published and presented paper at the SITE 2023 conference, available on LearnTechLib.org
- Developed linear/logistic regression modeling for highest levels of the Bloom's taxonomy regarding activities that educators performed with students, utilizing data collected from two EdTech surveys, each comprising 1,500+ individual responses

**Social Media Sentiment Analysis** ( Python, R )

*August 2022 - December 2022*

- Developed a **Python-based data scraping** tool to collect 350+ data points from major social networks for our client *Partnership for Strategic Impact (PSI)*, and feed multiple machine learning models to identify significant determinants of social media engagement
- Applied **natural language processing (NLP)** techniques, such as **tokenization and lemmatization**, to convert social media text into analytical data, and employed regression models to correlate patterns with social media impact metrics such as likes and comments
- Delivered a detailed analytical report for *PSI*, offering data-driven recommendations derived from a finely-tuned predictive model with a mean squared error (MSE) of about 0.4, resulting in a **37.3% increase** in the social media engagement of *PSI*

**Song Popularity Prediction on Spotify** ( R )

*August 2022 - December 2022*

- Engineered **machine learning models** using logistic regression, LDA, and decision trees, employing cross-validation and ROC curve analysis for robust validation and performance enhancement in song popularity prediction
- Leveraged shrinkage methods like ridge and lasso regression to refine models, resulting in optimal predictor selection that minimized test mean squared error (MSE) and enhanced model predictability, achieving an **accuracy of 58.5%** for song popularity predictions

## ACTIVITIES

**DreamCorps International at UVA**

**Charlottesville, VA**

*Vice President*

*September 2019 - September 2022*

- Managed the student-run non-profit organization, raised funds by organizing campaigns, such as Werewolf Table Game Competition and Autumn Snack Festival, and ran a studio of role-playing murder mystery
- Launched the "Marriage Pact" activity and successfully paired 40 couples as per precise data analysis of attendees' responses **with R**