# Sen Hu

+353 834828931 | ethansen.hu@gmail.com | senhu | sen-hu
19 Madison Court, Grattan Street, Dublin 2, D02 YF78, Ireland

## Skills

### Data science
Machine learning
Multivariate analysis
Time-series analysis
Maximum likelihood
Sampling methods
MCMC
Hypothesis testing
Experimental design
Data visualization

### Programming
R | 7+ yrs
Python | 4+ yrs
git | 2+ yrs
SAS | 1+ yrs
bash | 1+ yrs

### Database
SQL | 2+ yrs

### Languages
English (fluent)
Mandarin (native)
French (elementary)

## Education

**Ph.D.** Statistics, University College Dublin 2015–2019
Thesis: *Predictive Analytics with Clustering and Dependence Modelling for Insurance Pricing*

**M.Sc.** Statistics, Imperial College London, UK 2013–2014

**B.Sc.** Mathematics, University of Edinburgh, UK 2010–2013

## Experience

**RWE Data Scientist**
Novartis, Dublin, Ireland Oct. 2020–present
- Conducted observational data analyses using machine learning and statistical programming (clustering, regressions, decision trees, random forest, survival models) on multiple analytical studies investigating melanoma, polycythemia vera, liver/renal transplants
- Used SQL (Apache Impala) to manipulate and manage large observational databases (Optum, ConcertAI, MarketScan) for cohort extraction
- Produced documents on protocols, statistical analysis plan, analytic result reports
- Managed projects by leading teams, coordinating activities, timelines, issue management
- Communicated and liaised with customers on project scoping and progress, presented analytical deliverables
- Organized and chaired weekly wide team meetings and statistics training sessions

**Actuarial Marketing Data Scientist (Post-doctoral Researcher)**
Insight Centre for Data Analytics & Zurich Life Assurance, Dublin, Ireland Mar. 2020–Aug. 2020
- Analyzed large Zurich insurance data and Irish census data using machine learning (model-based clustering, k-means) in Python for customer segmentation and lapse prediction
- Independently identified issues and errors in the existing work in data analysis, corrected within tight timeframes and lead the project in a new direction
- Reported regularly to Zurich directors and published results in international journals
- Mentored two actuarial M.Sc. students' research thesis on COVID19 pandemic impact on customers' behaviours for Zurich in Ireland and copula modelling

**Consultant on Statistics and Data Science**
Self-employed, Dublin, Ireland and London, UK Jan. 2015–Feb. 2020
- Consulted for Institute and Faculty of Actuaries, as part of a team developed teaching materials for the IFoA Certificate in Data Science
- Consulted for Smiths Group on development of a summer internship programme on data science application, worked with programme managers for project implementation
- Provided statistical consultation for academic and medical researchers in Dublin and London

**Lecturer in Statistical Modelling**
School of Mathematics & Statistics, University College Dublin Sep. 2019–Feb. 2020
- Created and delivered original course materials on regression modelling and statistical inference to classes of approximately 100 students
- Coordinated module delivery and admin, set and graded assignments and exams

**Insurance Portfolios Data Analyst (Researcher in Statistics)**
Insight Centre for Data Analytics & Aviva Insurance, Dublin, Ireland Sep. 2015–Aug. 2019
- Developed innovative machine learning approaches (model-based clustering and variable selection) to segment customers across multiple lines of business, customers' claim predictions improved more than 10%
- Worked in a team with Aviva actuaries to identify business-related research questions, coordinated project progress, and interpreted research outcomes for commercial interest
- Reported results monthly to both Aviva directors and Insight managers
- Published research output in top level international conferences and journals

**Teaching Assistant in Statistics**
School of Mathematics & Statistics, University College Dublin, Ireland Sep. 2015–Aug. 2019
- Taught undergraduate and postgraduate classes of up to 130 students for 11 different modules in the field of statistical machine learning and statistical theory

**Medical Data Scientist (Research Assistant in Data Science)**
City, University of London, UK Sep. 2014–Jul. 2015
- Applied machine learning algorithms (PCA, factor analysis, regressions) in Python to eye and health clinical data and survey data collected from different UK NHS hospitals, to understand the relation between glaucoma eye condition and patients' quality of life