Sam Ellis

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Education

SEP 2021 – SEP 2020

MSc Computer Science — *University of Nottingham*
Graduated with a distinction (first-class equivalent).
Modules include: MSc Research Project; Conceptual Programming; Data Modelling and Analysis; Databases, Interfaces and Software Design Principles; Simulation and Optimisation for Decision Support; and Systems and Networks.

JUNE 2020 – SEP 2017

BEng Chemical Engineering — *University of Birmingham*
Graduated with a first-class honours.
Modules include: Healthcare Technologies; Mass, Heat and Momentum Transfer; Principles of Process Control; Process Integration and Unit Operations; Product Design Exercises; and Sustainable Process Engineering.

AUG 2017 – SEP 2015

A-Levels — *The South Wolds Academy and Sixth Form*
Achieved three A grades in biology, chemistry and maths and an A* grade in music.
Achieved subject award for exceptional performance in A-Level Chemistry.

Experience

AUG 2021 – JUN 2020

Trading Assistant — *Sainsbury's*
Worked as a general trading assistant during university summer breaks and throughout my MSc in Computer Science. Work involved general stock rotation and processing customer transactions.

Skills

Technologies

AnyLogic 8, AutoCAD, Microsoft Excel, SimSci PRO/II, Simulink, Weka.

Languages

Proficient — Python
Familiar — MATLAB, R, SQL
Working Knowledge — Rust, TypeScript
Web — Angular (working knowledge), HTML, CSS

Projects

MSc Research Project 2021 — Conducted research centralised around the project topic 'Predicting Keystrokes using an Audio Side-Channel Attack and Machine Learning'. The project implemented a keylogger which could be used to map keystroke signals to their relevant keystroke emanation to generate a supervised dataset. Multiple datasets from different users were created and evaluated using state-of-the-art machine learning approaches. Key findings from this research included a keystroke recovery rate of up to 89% from a 40-key classification problem, and the use of a novel cross-prediction attack to significantly enhance recovery rate. I received a high first in this project.

Data Analysis Report 2021— Using R, preprocessing, reduction, and transformation were performed on a real-world dataset (the SDSS DR14 dataset). After subsequent treatment, the effects of combining alternate pre-processing methods on multiple clustering and classification methods were studied. Analysis and proposed methods for preprocessing and classification were summarised in a written report. I received a high 2:1 in this report.

Design Project 2020 — Designed a pectin manufacturing process capable of producing 142 tonnes of pectin per annum from raw waste orange peel. The project involved the completion of Hazard Studies 1, 2, and 3; an initial scheme report and mass/energy balance; data specification sheets; an oral presentation focusing on the pectin process design; cash-flow analysis detailing profits, operational costs, fixed costs, and capital costs; a complex Piping and Instrumentation Diagram; and an individual detailed design on a distillation column. I received a first in this project.

Automated Distillation Column Design 2020 — Designed an ethanol-recovery distillation column using MATLAB which called raw data from a group Excel spreadsheet, and used this to calculate essential design parameters for the column. These parameters would change depending on other members' design considerations being inputted into the spreadsheet. I received a first in this project.

Game Project 2020 — Developed the game 'Deadline Dash' in a group with two other students based on the classic frogger arcade game. My responsibilities included development of the GUI and sprite interactions within this environment, as well as sound design.