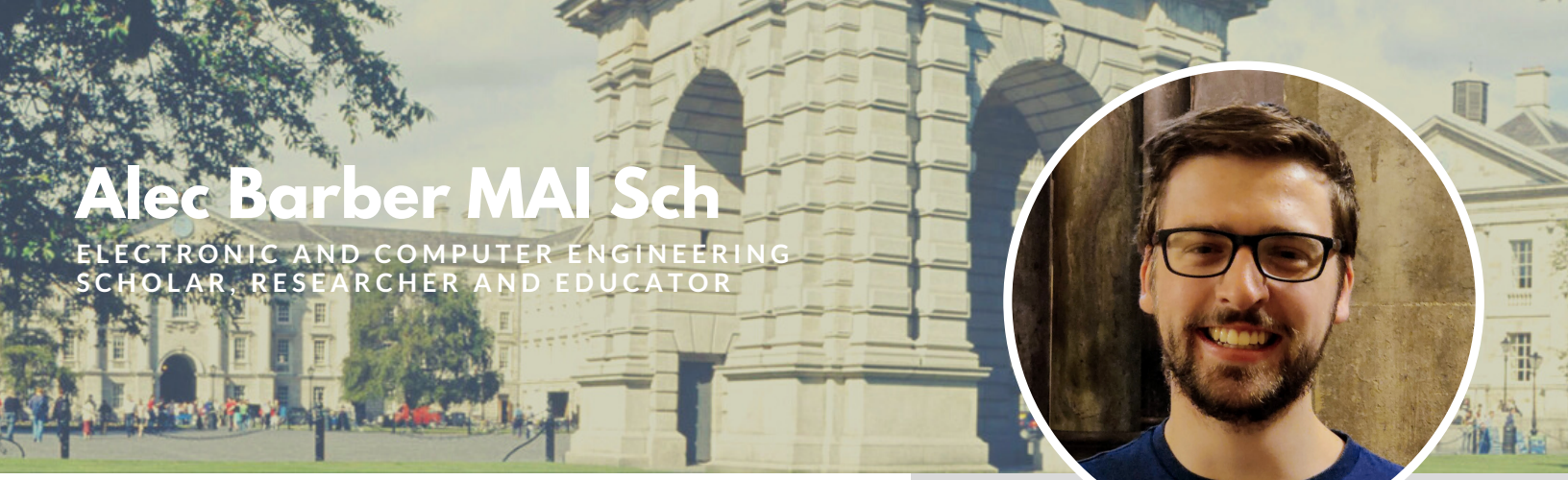

Alec Barber MAI Sch

ELECTRONIC AND COMPUTER ENGINEERING
SCHOLAR, RESEARCHER AND EDUCATOR

Education

TRINITY COLLEGE, UNIVERSITY OF DUBLIN | 2015 - 2020

MAI Computer and Electronic Engineering | Distinction

- Top result in my year (83%)
- Bayesian statistical signal processing, machine learning and software
- Lead educator Trinity Walton Club

BAI Computer and Electronic Engineering | First Class Honours

- Telecommunications, information theory and computer networking
- Dublin University Boat Club and Computer Science Society

SLIGO GRAMMAR SCHOOL | 2008 - 2015

Prefect & Kayak Club Captain

- Principle's award for placing highest in Leaving Certificate
- AV, debating and kayak clubs
- Co-founder of school coding club and cycling clubs

Experience

AI RESEARCH | 2020

UTIA - Institute of Information Theory and Automation

- Continuing research on Bayesian transfer learning from MAI
- Fully Probabilistic Design principles

LEAD EDUCATOR AND COURSE CREATOR | 2019 - 2020

Trinity Walton Club

- Co-created a course on telecommunications for transition year students
- Socket programming to build an instant messaging application
- Lead small team of educators in delivering content
- Created course on Python programming for summer camp

RESEARCH INTERNSHIP | 2018 - 2019

CONNECT Centre

- Adapted and contributed to a 802.11ad module for the network simulator NS-3 (C++)
- Researched directional transmission techniques and improvements
- Evaluations presented at an academic symposium in Waterford

ATTENDANT / WAITER | 2016

Azur et Niege, Montclar France

- Stagiaire, watering and portering duties

Profile

Motivated and disciplined engineer with keen interest and aptitude in machine learning and Bayesian probability. Raised in a rural farming setting, I am familiar with the importance of perseverance and hard work. I have a diverse range of personal interests spanning History, Economics and Philosophy.

Contact Details

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Modules of Note

Module	Grade
- Deep Learning and it's Applications	I:I
- Machine Learning	I:I
- Artificial Intelligence	I:I
- Information and Communication Theory	I:I
- Signals and Systems	I:I
- Digital Signal Processing	I:I
- Statistical Signal Processing	I:I
- Probability and Statistics	I:I
- Numerical Methods	I:I

Technical Skills

- Bayesian inferential methods
- Machine learning libraries Scikit-Learn and Keras
- Linux and Windows systems
- IEEE WLAN protocols
- Competent maths ability

Programming Languages

Primary
- Python
- C++
- C
- Matlab

Secondary
- C#
- Verilog
- Arduino
- ARM + x64

Auxiliary Skills

- Intermediate French
- Level 3 kayaking
- Irish drivers license
- Level 1 lifeguard

Referees

Prof. Anthony Quinn
Associate professor in statistical signal processing at Trinity College Dublin.
aquinn@tcd.ie

Prof. Nicola Marchetti
Associate professor in wireless communications at Trinity College Dublin.
marchetn@tcd.ie ☎ +353 1896 4898

Dr. Jacek Kibilda
Research fellow, CONNECT Centre at Trinity College Dublin.
kibildaj@tcd.ie

Projects and Research

BAYESIAN TRANSFER LEARNING | 2019-2020

Research project investigating Bayesian transfer learning in a multiple inference-node setting where the complete model is not presumed or designed. This is achieved via two object transfer methods and the adoption of Fully Probabilistic Design (FPD) principles. Continuing work with UTIA in Prague, working towards a small publication.

OTHELLO GAME PLAYING AI SURVEY | 2020

Led a semester long team project on a comprehensive evaluation of game playing AI for the game Othello. Evaluations showed relative performance of the methods along with somewhat surprising ineffectiveness of neural networks. Resulting paper achieved the top grade in the class (90%).

CS:GO LOCATION PREDICTOR AI | 2019

Constructed a prediction model for the first person shooter game CS:GO to estimate enemy location given limited knowledge of the game state. Due to difficulty in parsing game replay files and the lack of any public dataset, to the best of my knowledge, this has never been attempted.

ARM ASSEMBLY INTERPRETER | 2018

Interpreter for the ARM7tdmi instruction set built in C++. Simulates an environment for assembly code to execute while aiming to provide useful debugging information.

Other Achievements and Interests

ACADEMIC SCHOLAR

- Elected a Scholar of Engineering after obtaining a first class honours in a set of annual searching exams
- Represent the college in events including an academic exchange with Oriel College, Oxford
- Benefits include the waiving of fees, free campus accommodation, daily 3 course meal, yearly stipend and access to special events

ROWING

- Stroked novice 8 and helped lead crew to unexpected success at multiple events
- Contributed to running of club and regattas

LEVEL 3 KAYAKING SKILLS

- Junior Liffey Decent gold and silver medals
- Worked as instructor, teaching students along with tourists