Aliaksei **Pilko**

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Dedicated 3rd year Aerospace Engineering student with strong academic record. A love for aviation, pursuing a Private Pilot Licence and a Gliding Endorsement. Proven design and manufacturing experience with extensive software development and computing knowledge and strong teamwork and leadership abilities. Particular interest in control systems, autonomous systems and mechatronics.

Education

University of Southampton

Master of Engineering in Aeronautics and Astronautics *2017 – 2021*

- Modules include: Aerodynamics, Astronautics, Flight Mechanics, Systems Design and Computing
- Societies include: Robotics Society, Human Powered Aircraft, Spaceflight Society and Gliding Society
- Designed UAV control system for group design project using Simulink and Model Based Design techniques. Used Simulink Code Generation features to streamline prototyping of UAV.
- Designed, built and successfully tested an odometry robot as part of a team and was solely responsible for the C++ programming of the Arduino used. Calibrations were performed using leading methods such as the UMBMark test.
- Strengthened my technical presentation abilities by presenting results of experiments and projects to peers and supervisors. I particularly like using interactive programming tools such as Jupyter Notebooks and MATLAB Live Scripts for this.

Leighton Park School

A-Level A*AAA, GCSE 7A* 2A *2010 – 2017*

- Extended Project Dissertation: 'How will the United Kingdom's Terminal Airspace cope with increasing demand?'

Relevant Experience

Tekever

Software Engineer *June 2019 – September 2019*

- Delivered, in an Agile environment, multiple Machine Learning/AI research projects based on mining open Big Data sets for integration into mission control software for industry-leader in UAV-based maritime surveillance.
- Implemented research-leading Anomaly Detection algorithms (Active Isolation Forests, LODA and Support Vector Machine) from scratch in C# .NET as class libraries for integration with main codebase.
- Prototyped several Recurrent Neural Network (RNN) architectures (Bi-directional LSTM, GRU, NARX and Clockwork RNN) for marine traffic trajectory prediction.

RoboSoc

Eurobot Mechatronics Team *September 2018 – Present*

- Solely responsible for delivering anthropomorphic 3 joint robot arm with end effector to specification from scratch. Full 3 DoF assembly produced using Solidworks and structural FEA analysis performed for anticipated loads, resulting in reduced weight and size of the arm.
- MATLAB interactive live script used to model and plot the area of reach of the arm from the forward kinematics. This was presented and distributed to colleagues designing interacting parts.
- MATLAB used to construct an Adaptive Neuro-Fuzzy Inference System to solve inverse kinematics of the arm, preferring an elbow up orientation. This involved creating training data from the forward kinematics then validating the trained networks using known arm angles for given positions.

Formula Student

Aerodynamics Team *September 2018 – Present*

- Collaboratively designed and verified rear wing Drag Reduction System by iterating designs using Solidworks CAD models and Star CCM CFD simulations to select best design candidates and manufacture prototypes.
- Modelled mechanical linkage system dynamics using MATLAB interactive live script, allowing an easy and interactive presentation to team leaders in design meetings
- Coordinated closely with rear wing design team to ensure part compatibility and minimise aerodynamic disturbances caused by actuator positioning. Negotiated to have DRS system mounted outboard of endplate to minimise interference, improve ease of assembly during manufacture and increase system modularity.

Human Powered Aircraft

Wing Team *September 2017 – Present*

- Designed, as part of a team, a system of adaptable ribs to support the wing structure using an existing twisted wing spar that is unfeasible to redesign and manufacture. Ribs were designed and verified on CAD.
- Mentored new society members in Solidworks CAD modelling and FEA analysis as well as CFD methods using ANSYS Fluent and designing for manufacture by giving presentations of key techniques and offering one-to-one assistance.

Formula Student

Suspension Team *September 2017 – September 2018*

- Designed clevises and wishbones using CAD and verified design with FEA using predicted load values from Simulations team
- Reduced weight of multiple clevises after performing several FEA and design iterations and using more accurate predicted load values from the Simulations team
- Coordinated with Simulations, Chassis and Aerodynamics teams to obtain and verify designs using predicted load values, chassis mounting points and to minimise aerodynamic interference while ensuring the design met specifications

Additional Experience

University of Southampton

Engineering Student Ambassador *July 2018 – Present*

- Represented the University at high stakes events such as Open Days. Undergone training to ensure adherence to Competition and Marketing Authority regulations
- Inspire and inform prospective students and parents in 'drop-in' events where any questions can be asked. This requires me to think on my feet and draw on my knowledge of the engineering courses and options offered by the University as well as my own experiences

Magnet.me

Brand Ambassador *February 2018 – Present*

- Increased positive brand awareness by advertising and spreading awareness on social media groups
- Obtained large number of signups through boosted social media awareness

Thorpe Park Resort

Admissions Host *July 2018 - September 2018*

- Ensure that guests feel welcome, as I was one of the first members of staff they would interact with on their day. I ensured I was friendly and presentable at all times and available to answer guest queries
- Resolved guest queries and complaints in a calm professional manner, minimising the negative experience on the guests day and ensuring suggestions were passed to senior managers that could action them effectively
- Upsold on every transaction aiming to exceed sales targets set for everyday by suggesting products with large profit margins such as Fasttrack tickets

Skills

Programming Languages	Java, C#, Python, C++, MATLAB
Software Packages	Simulink, ANSYS AIM and Fluent, Solidworks, Microsoft Office
Technologies	Windows Forms, Unix, Apache Server, Android, Pandas, Tensorflow, Scikit Learn
Languages	English, Russian

Certifications

Nov 2018	**STK Level 1**,	*AGI*
June 2017	**Six Sigma White**,	*Six Sigma*
May 2017	**Student Affiliate Member**,	*RAeS*
June 2016	**Solidworks Associate**, License C-LVV2ADJHJX	*Dassault Systemes*

Achievements

2017	**School Hockey Captain**,	*Leighton Park*
2017	**Head of House**,	*Leighton Park*
2017	**Production Head of Lighting**,	*Leighton Park*
2016	**Silver Duke of Edinburgh Award**,	*Leighton Park*

References

Available on request