LUKAS VACEK

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EDUCATION & QUALIFICATIONS

Penn Carey Law, University of Pennsylvania ♦ Philadelphia, PA 07/2025 – 05/2026
Candidate for Master of Laws (L.L.M.)
LAW 655 Transnational Legal Clinic (Fall 2025; Grade TBD):
- Won legal case representing individual who escaped persecution in immigration court (as student legal representative)

Faculty of Law, The University of Hong Kong ♦ Hong Kong 08/2023 – 2026
Candidate for Juris Doctor (J.D.); GPA: 3.64 (First Class Honors expected based on degree classification scale)
- Degree to be conferred upon successful completion of dual-degree exchange program with University of Pennsylvania in 2026; all other program requirements satisfied

JDOC 6205 Clinical Legal Education (Summer 2025; Pass):
- Best performance: CompliancePlus Consulting Limited Prize for Pro-bono Work in Clinical Legal Education 2024-25

JDOC 6313 Law as Data (Grade: A):
- Applied artificial intelligence and machine learning techniques to legal problems; final project involved developing the best possible classifier to identify relevant email communications during legal discovery

Wharton School of Business, University of Pennsylvania ♦ Philadelphia, PA 08/2013 – 05/2017
Bachelor of Science in Economics: concentration in Finance; *Cum Laude* honors

School of Engineering and Applied Science, University of Pennsylvania ♦ Philadelphia, PA 08/2013 – 05/2017
Bachelor of Science in Engineering: major in Computer Science; minor in Mathematics; *Cum Laude* honors
MEAM 620 Advanced Robotics (Spring 2021; A+):
- Developed a path planner, trajectory generator and controller to fly quadrotor through obstacles and tight passages using a minimum jerk trajectory; achieved the fastest overall time in my class (more details)

MEAM 545 Aerodynamics (Fall 2020; A+):
- Modelled UAV wing performance using the numerical non-linear lifting line method, including calculating the lift distribution and accounting for the effect of the propeller wake (more details)
- Final presentation on using plasma flow actuators for active flow control, including for flight control, on-demand high lift device (flaps), improving airfoil performance and stall control (more details)

MEAM 201 Machine Design & Manufacturing (Spring 2014; A+):
- Class objective was to design, analyze, manufacture, and test fully-functional mechanical systems (Stirling engine)
- Modified the given Stirling engine design to use water cooling in lieu of air cooling for improved performance
- Despite not being allowed to use the water cooling for the class leadership ranking (i.e. significantly limiting performance by emptying the water-cooling jacket and not having a proper air cooler), my engine still achieved the highest RPM in my class (leaderboard)

French International School ♦ Hong Kong 09/2003 – 05/2013

Hong Kong Securities and Investment Institute: Licensing Examination ♦ Hong Kong 12/2022 – 01/2023
- Passed Paper 1 (Fundamentals of Securities and Futures Regulation) & Paper 2 (Regulation of Securities)
- Required to act as a Licensed Representative or Responsible Officer of a Corporation licensed by the HK SFC

PROFESSIONAL AND RESEARCH EXPERIENCE

[Tech startup – contact for name]: Director 09/2024 – *present*
- Founded company that offers remote S3 data storage and time-machine style device backups at a highly competitive price-point compared to other top cloud SAAS companies
- Goal was to bootstrap my own technology startup, going through the full product development and go-to-market process and applying the skills and experience from my business, engineering and legal background

Zoomba Limited: Director 03/2021 – *present*
- Founded company to help organizations solve their most complex problems and achieve their full potential
- Successfully led ~30 consulting projects; usually run in collaboration with other top consulting firms
- Focus on rigorous analytical techniques, such as geospatial analysis for competitive differentiation

McKinsey & Company: Engagement Manager 08/2017 – 04/2020
- Promoted directly from Business Analyst to Engagement Manager in less than 2 years at the Firm (ahead of cohort)
- Specialized in strategy, corporate finance, private equity and large-scale, rapid corporate transformations
- Led projects in developed & developing regions, including: United States, Europe, South East Asia & the Caribbean

Sample projects include:
- Advised a supersonic aircraft startup to create a 'future of mobility' vision for supersonic air travel, including accounting for the technical capabilities of the aircraft to design how this futuristic market could work
- Multiple due diligences to assess market size, dynamics, competitive landscape and operational improvements in industries such as aerospace, electronic table games, advanced industries, healthcare, high tech & automotive
- Identified a financial distress scenario in a publicly-traded client, resulting in an immediate, rapid transformation
- Built strategy for supermajor O&G company to expand into renewable energy, as part of a long-term transformation
- Designed the financial restructuring of a Caribbean-based company that suffered from long-term unprofitability

- Created a go-to-market & competitive response strategy for a technology (payments) company

Multi-Robot Systems Lab, University of Pennsylvania: Student Researcher 05/2016 – 05/2017
- Developed complete aerial robotic systems, including mechanical, electrical and software design
- See Publications and Inventions below; focus on aerial robots for agriculture, such as mosquito trap deployments

Amazon: Summer Software Development Engineer 05/2016 – 07/2016
- Developed software for the machine learning platform at Amazon Alexa (incl. Echo Show & Echo Look prototypes)

MasterCard: Privacy & Data Protection 11/2015 – 05/2016
- Worked on anonymization of big data and creating policies to ensure data is not traceable back to the customer

MasterCard: Process Optimization and Management, Legal & Franchise Integrity 05/2015 – 07/2015

University of Pennsylvania: Teaching Assistant (CIS 120) 01/2014 – 12/2014
- Taught Programming Languages and Techniques, starting already as a second-semester freshman

PUBLICATIONS AND INVENTIONS

Daniel Orol, Lukas Vacek, Delaney Vanessa Kaufman, Jnaneshwar Das, Vijay Kumar. "Systems, devices, and methods for agricultural sample collection". US Patent US11609159B2. November 2018.
- Led invention of system for deploying an environmental probe (e.g. collecting mosquitos for malaria research) and contributed to invention of low-cost aerial phytobiopsy system for plant sample collection

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Matt Schmittle, Anna Lukina, Lukas Vacek, Jnaneshwar Das, Christopher P Buskirk, Stephen Rees, Janos Sztipanovits, Radu Grosu, Vijay Kumar. "OpenUAV: A UAV testbed for the CPS and Robotics community". *2018 ACM/IEEE 9th International Conference on Cyber-Physical Systems (ICCPS)*. April 2018.
- Open-source, cloud-enabled testbed for UAVs to extend physical testing with a ready-to-go simulation framework
- Supported by the NSF CPS Virtual Organization's Active Resources initiative

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Lukas Vacek, Edward Atter, Pedro Rizo, Brian Nam, Ryan Kortvelesy, Delaney Kaufman, Jnaneshwar Das, Vijay Kumar. "sUAS for deployment and recovery of an environmental sensor probe". *2017 International Conference on Unmanned Aircraft Systems (ICUAS)*. June 2017.
- Designed, developed and built sUAS for autonomous deployment and recovery of a novel environmental sensor probe and used our sUAS to deploy and recover a scale-model mosquito trap outdoors
- Inspired by & collaborated with Microsoft Research's Premonition Project to collect mosquitos for malaria research

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Daniel Orol, Jnaneshwar Das, Lukas Vacek, Isabella Orr, Mathews Paret, Camillo J Taylor, Vijay Kumar. "An aerial phytobiopsy system: Design, evaluation, and lessons learned". *2017 International Conference on Unmanned Aircraft Systems (ICUAS)*. June 2017.
- Novel small unmanned aircraft system (sUAS) for phytobiopsy that can remove a leaf section with visual symptoms and transport it to a lab for precise disease analysis

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Lukas Vacek, Benjamin Kramer. "Development of an Aerial Robot for Flying in Confined Spaces and Interacting with Ground Robots". *2016 International Aerial Robotics Competition (IARC)*. June 2016.
- Best Technical Paper Award: single quadrotor is used to herd 10 ground robots while avoiding moving obstacles

ACTIVITIES

Mars Rover Club at Penn: Advisor 11/2025 – *present*
- Advising a team of 45 engineers (primarily undergraduate students) at the University of Pennsylvania who are building Penn's first competitive Mars rover for the University Rover Challenge in May 2026

Penn Aerial Robotics: President & Founder; Advisor 01/2014 – 05/2017; 09/2025 – *present*
- Founded competitive team to build fully autonomous UAVs (rotorcraft and fixed-wing) for various competitions
- International Aerial Robotics Competition (August 2016): Best Technical Paper Award
- National Science Foundation CPS-VO Competition (October 2016): 1st Place
- AIAA Design-Build-Fly (April 2017): Successfully completed all missions; ranked 39th out of 95 teams
- AUVSI sUAS (June 2017): Cash Prize for Obstacle Avoidance Algorithm

Student Activities Council: Executive Board 02/2015 – 02/2016
- Managed $1.2 million budget to be distributed to member clubs and organizations

Consult for America: Lead Project Manager (2015-16), Project Manager (2014-15), Consultant (2014) 01/2014 – 05/2016
- Lead four teams of students (~50 consultants in total) to help small businesses in Philadelphia

Penn Mock Trial 09/2013 – 05/2017
- Captain: Fall 2014; Best Attorney Award: Yale Invitational Tournament 2015

Penn Speech and Debate 09/2014 – 05/2017

Penn Ski Team 09/2016 – 05/2017

PERSONAL

- **FAA Private Pilot:** Aircraft Single-Engine Land; Remote sUAS Pilot for Commercial Use 08/2015 – *present*
- **International:** Lived in Hong Kong (permanent resident), Bermuda, USA, UK (pre-settled), Czech Republic (citizen)
- **Languages:** English (Native), Czech (Native), Mandarin (Intermediate), French (Intermediate)