Philip G. Leindecker

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Education

ETH Zurich	Zurich, Switzerland
Doctor of Philosophy (PhD) in	Oct. 2021 - TODAY
 Trapped Ion Quantum Information Group with Prof. Dr. Jonathan Home Part of the ETHZ-PSI Quantum Computing Hub 	
ETH Zurich	Zurich, Switzerland
Master of Science (MSc) in	Sep. 2019 - Sep. 2021
 Physics Master Student in the IMPACT Lab of Prof. Tilman Esslinger's Quantum Optics Group Semester Project: 'Fast Digital Notch Filter on a Microcontroller' Teaching Assistant - Analysis II (FS 2020) 	
University of Technology Vienna (TU Vienna)	Vienna, Austria
Bachelor of Science (BSc) in	Oct. 2016 - Jun. 2019
 Technical Physics Graduated with distinction Bachelor thesis: 'Neural Networks in the field of Tribology' Completed additional courses from the BSc. Software Engineering Curriculum: Databases I & II, OOP, TIL Teaching Assistant - Mathematics I (FS 2019) 	
Johannes Kepler University (JKU)	Linz, Austria
 BACHELOR OF SCIENCE IN Technical Physics As a participant in the gifted education program: 'Students at Universities.' 	Oct. 2015 - Feb. 2016
AHS - BG/BRG Brucknergymnasium	Wels, Austria
HIGH SCHOOL	Sep. 2009 - Jun. 2016
 Graduated with distinction with the final degree 'Matura' (equivalent of the German 'Abitur') 	

Skills

Digital Skills Python3, Jupyter, C++, Java, Neural Networks, Tensorflow/Keras, Git, Swift & SwiftUI, Micro Controllers Web HTML5, CSS3, PHP, JavaScript, SQL, PostgreSQL, Firebase Language German (Mothertongue), Englisch (C1), French (B1)

Research Experience

ETH Zurich

MASTER STUDENT - IMPACT LAB IN PROF. TILMAN ESSLINGER'S QUANTUM OPTICS GROUP

- Using a Digital Micro Mirror Device (DMD) for ultra fast and high precision holographic beam shaping on a BEC in two crossed optical cavities.
- Realizing a uniform potential ring trap using a test-setup representing the high NA imaging part of the IMPACT Apparatus.
- Implementing several beam shaping algorithms such as vector holography, Mixed Region Amplitude Freedom (MRAF) and Stochastic Gradient Decent (SGD)
- Implementing deep-learning methods such as ResNet for improved accuracy, speed and flexibility.

ETH Zurich

RESEARCH ASSISTANT - IMPACT LAB IN PROF. TILMAN ESSLINGER'S QUANTUM OPTICS GROUP

- Development of a digital feedback-device acting as a highly adaptable and 'smart' control device for experimental parameters such as optical cavity lengths or laser powers in quantum optic labs.
- Integrated and enabled communication of the feedback-device with an internal control system responsible for the whole experimental set-up based on TCP/IP and SPI protocols.

CERN

CERN - SUMMER STUDENT PROGRAMME 2019

- Selected from a pool of over 92 different nationalities with a 6% acceptance rate.
- Worked on enabling interactive jsroot graphics in Jupyter Lab as part of the ROOT Team.
- Attended a daily lecture and workshop programme for summer students and openlab students.

Zurich, Switzerland

Zurich, Switzerland

Sept. 2020 - Dec. 2020

Geneva, Switzerland

Jul. 2019 - Aug. 2019

Feb. 2021 - July 2021

TU Vienna in Cooperation with AC2T

BACHELOR THESIS - NEURONAL NETWORKS IN THE FIELD OF TRIBOLOGY

- Title: Pattern recognition in acoustic emission using neural networks
- Using neuronal networks (MLP, CNN, ...) to find correlations and recurring patterns in quasi-continuous acoustic samples from tribological experiments.

Work Experience

Deutsche Bank AG

SUMMER INTERNSHIP PROGRAMME 2018

- · Built a Recurrent Neural Network based application to generate large amounts of new test data for an internal documents-checker and fraud-detection application.
- Implemented in Python3 using TF.Keras.

Daimler AG

RESEARCH AND DEVELOPMENT

- Created and managed Daimler internal websites and apps for employees as part of the digitalization team in car development and research.
- Led workshops and tutorials for co-workers regarding new software tools and digitalization concepts.

TTTech Computertechnik AG

RESEARCH AND DEVELOPMENT

- Part of the software development team in the Automotive Division for self-driving cars.
- Visualized and analyzed internal code structures using Python 3 and graphviz for both ensuring code robustness and enhancing software architectural decisions.

Additional

2018	Ski Instructor, Anwärter Ski in Tirol (Austria)	Kitzbühel, Austria
2018	TOEFL - Test, 102 out of 120 points	Munich, Germany
2016	Cambridge Certificate, Level C1	Linz, Austria
2015	Certificate for Entrepreneurship, passed the final exam with distinction	Vienna, Austria
2015	Participant, Physics Olympiad, Chemistry Olympiad (2012 - 2015)	Austria

Technical Projects

212 ° F - iOS App

Developer

- Developed an iOS-App using machine learning to detect certain trained sounds such as the boiling point of water during cooking.
- Used the Apple Turi Create framework for the custom trained ML model.
- Available on the official Apple App Store: 212° F: 212° F

Exashare - File-Sharing Website

Developer

Austria Sep. 2014 - TODAY

Austria

April 2020

- Creator, founder and manager of a student file-sharing platform (exashare.at) containing more than 1000 user-generated school specific documents.
- Implemented in HTML, CSS3, PHP3, MySQL and JavaScript.
- Website: exashare.at

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Vienna, Austria Dec. 2019 - Mar. 2019

Frankfurt, Germany

Sindelfingen, Germany Jul. 2017 - Aug. 2017

Jul. 2018 - Aug. 2018

Vienna, Austria

Aug. 2016