Samuel Jankových

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EDUCATION

Charles University, Faculty of Mathematics and Physics **2023 –**
Mgr. (MSc.) in Particle and Nuclear Physics *Prague, Czech Republic*

Terascale Monte Carlo School, DESY **2024**
Lectures and Tutorials *Hamburg, Germany*

Charles University, Faculty of Mathematics and Physics **2020 – 2023**
Bc. (BSc.) in Physics *Diploma with Honours* *Grade Average: 1.00 (1 is best)* *Prague, Czech Republic*

HASCO, Georg August University of Göttingen **2020**
Summer School *Grade: A (A is best)* *Göttingen, Germany*

8-year Gymnasium Tilgnerova **2012 – 2020**
Primary and Secondary education *Leaving exams: All grade 1 (1 is best)* *Bratislava, Slovakia*

COURSEWORK / SKILLS

- Physics Fundamentals
- Machine Learning
- Deep Learning
- Deep Neural Networks
- Advanced Quantum Mechanics
- General Relativity
- Computing on HPC clusters
- GPU computing
- Linux administration

PUBLICATIONS

Constituent-Based Quark Gluon Tagging using Transformers **2023**
ATLAS Collaboration *ATLAS Public Note*

TALKS AND CONFERENCES

Quark Gluon Jet Taggers in Release 22 **2024**
talk *ATLAS Hadronic Calibration Workshop, Ottawa*

Constituent based Quark/Gluon Jet Tagging **2024**
poster *ICHEP, Prague*

Constituent based Quark/Gluon Jet Tagging **2023**
talk *ML4Jets, Hamburg*

Constituent based Quark/Gluon Jet Tagging **2023**
presentation *ATLAS Hadronic Calibration Workshop, Valencia*

THESES

Quark/Gluon Jet Tagging | Bachelor Thesis **2023**

- **supervised by Mgr. Vojtěch Pleskot Ph.D.**
- **ATLAS presentations**
- **continuing research at ATLAS**
- Quark and Gluon Jets
- Jet Tagging
- Jet Constituents
- Monte Carlo Simulations
- Transformer Architecture
- *https://dspace.cuni.cz/handle/20.500.11956/182597?locale-attribute=en*

PROJECTS

Measurement and simulation of a temperature field | School Project **2019**

- Heat Equation
- Thermal Imaging
- Thermal Conductivity
- *https://arxiv.org/abs/1909.01460*

Fake τ background in τ^* search | Student Faculty Grant **2021**

- Fake Factor Method
- τ classification
- ATLAS Collaboration
- *https://drive.google.com/file/d/1k7So9AuAj62re_s0pZRw0U2cgkDUlR0y/view?usp=sharing*

Jet Identification Deep Neural Networks | Python Framework **2023**

- Software Package
- Deep Learning
- Tensorflow
- Jet Physics
- Quantum Chromodynamics
- *https://github.com/jansam123/JIDENN*

EXPERIENCES

BEZ Transformers a.s., *Intern* **2019**

BEZ Transformers a.s. is a world-wide transformer manufacturer. *Bratislava, Slovakia*

- CAD modeling of transformers
- Fluid flow modeling using Ansys Fluent
- Transformer cooling analysis

PROFESSIONAL INTERESTS

- CERN research
- Particle Physics
- Standard Model Physics
- Beyond Standard Model Physics
- Jet Physics
- Quantum Chromodynamics
- Deep Neural Networks in HEP research
- Transformer Architectures
- Software Design
- Advanced Statistics
- GPU computing

AWARDS AND GRANTS

GAUK, Charles University Grant Agency **2024**
2 year grant *Amount: 6600 € per year* *Charles University, Prague*

Price of the Rector of Charles University **2023**
Best bachelor student in the field of Natural Sciences *Amount: 800 €* *Charles University, Prague*

Price of the Dean of the Faculty of Mathematics and Physics **2023**
Second best bachelor thesis in the field of Physics *Amount: 320 €* *Charles University, Prague*

Prize of the Minister of Education, Youth and Sports **2023**
Best bachelor student in Czech Republic *Amount: 2000 €* *Charles University, Prague*

Czecho-Slovak Student Scientific Conference in Physics **2023**
2.place *Prize: 130 €* *Charles University, Prague*

Scholarship for Excellent Study Results **2022**
2nd year Bc. *Amount: 770 €* *Charles University, Prague*

Scholarship for Excellent Study Results **2021**
Summer Term 1st year Bc. *Amount: 770 €* *Charles University, Prague*

Scholarship for Excellent Study Results **2020**
Winter Term 1st year Bc. *Amount: 640 €* *Charles University, Prague*

TECHNICAL SKILLS

Languages: Python, C, C++
Frameworks: ROOT, Tensorflow, Scikit-learn, Uproot, Hugo
Technologies: MacOS, Linux, Git, VS Code, Docker, Slurm, Condor, LaTeX

SPOKEN LANGUAGES

English: C2
German: B1
Slovak: native