Elijan J. Mastnak

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GENERAL INFORMATION

Citizenship: United States and Slovenia (EU member state)

Languages: English, Slovene, Spanish

Skills include: clearly-communicated technical writing; teaching introductory through undergraduate physics, mathematics, and programming; LaTeX, including real-time transcription of mathematical formulas; scientific Python (`NumPy`, `Matplotlib`, `SciPy`); vector graphics (`Tikz`; Inkscape); shell scripting and Unix utilities; Java; Git and GitHub; Vim/NeoVim.

EDUCATION

University of Ljubljana, Faculty of Math and Physics — *Ljubljana, Slovenia*
Bachelor of Science in Physics — *October 2018 to September 2021*

   Thesis: "End-to-End Classification for Discovery of New Processes in High-Energy Physics"
   Thesis webpage: https://ejmastnak.github.io/seminar/seminar.html

Newport Harbor High School — *Newport Beach, CA*
International Baccalaureate Diploma — *September 2014 to June 2017*

EMPLOYMENT

University of Ljubljana, Faculty of Math and Physics — *Ljubljana, Slovenia*
Private Contractor — *June 2021 to present*

Commissioned to typeset and translate the first-year physics curriculum to English, in textbook form, using recorded Slovene video lectures. Project goal: make the university's physics program more approachable to foreign-exchange students.

TMG-BMC Ltd. — *Ljubljana, Slovenia*
Data Analyst and Software Developer — *August 2019 to September 2021*

TMG-BMC is a biomechanics and kinesiology company specializing in high-end, non-invasive sensors for quantifying muscle function in professional athletes. Webpage: https://www.tmg-bodyevolution.com/

- Analysis of 1D biomechanical time-series data from TMG, EMG, load cell, and MC sensors: detecting and quantifying twitch potentiation; quantifying contraction time, maximum muscle displacement, and rate of force development.

   Techniques include: numerical integration and differentiation, Lagrange interpolation, curve fitting, iterative methods for nonlinear equations, peak detection, filtering, statistical parametric mapping.

- Developed cross-platform user interface (in Java using Swing) to make above-described analysis accessible to non-technical users.

- Regularly worked with professional (including Olympic) athletes, mostly in track and field.

Newport Harbor High School — *Newport Beach, CA*
Two positions: *Academic Tutor* and *Soccer Coach* — *August 2017 to June 2018*

- Tutor in physics, math and programming for Newport Harbor High School's AVID program, which provides school-sponsored after-school tutoring to students.

- Assistant coach in the boy's soccer program for the academic year (as an alumnus and former varsity captain); head coach of the Frosh-Soph team in the 2017-18 winter season.

Self-Employed — *Newport Beach, CA*
Private Tutor — *September 2017 to June 2018*

Worked as a private tutor in math and physics in the Newport Beach and Costa Mesa area; served students from Newport Harbor and Corona del Mar High School.