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Merits and experience in teaching and societal impact with future prospects

Work experience

I have worked as a university teacher in the Department of Physics and Mathematics, of University of Eastern Finland, in the following projects developing online course materials:

- *Multidisciplinary university level thematic entity of linear analysis* state subsidy (Ministry of Education and Culture of Finland), **2021-2022**. The university teacher position started June 1st **2021** and will end May 31st **2022**. In this multidisciplinary project I prepared the reorganization of the mathematics courses Linear algebra a and b and the physics courses Basics in numerical calculations and Data and Error Analysis in Natural Sciences (bilingual Fin/Eng) to online format.
- *University of Eastern Finland Continuous learning separate funding*, **2019-2020**. The university teacher position started **1.8.2019** and ended **31.7.2020**. In this collaborative project of Department of Physics and Mathematics (Joensuu) and Department of Applied Physics (Kuopio), I prepared online materials for the courses Integral calculus and Basics in mathematics.

My responsibilities included writing mathematical text to Digicampus Moodle platform by using HTML language and MathJax library which allows the usage of LaTeX code. I have prepared static and dynamic images via TikZ package and JSXGraph Javascript library. In addition, I have made versatile teaching videos by using a tablet and a computer. In these videos, I have used my self made slide presentations and Matlab visualizations. For the Moodle courses, I have prepared automatic evaluation Moodle quizzes, randomized STACK quizzes and CodeRunner programming quizzes.

During 2015-2021, I have taught a broad variety of courses in mathematics (Introduction to Topology, Algebra a, Euclidean geometry, Measure and Integration Theory a, Basic Course in Fourier Analysis, Differential Calculus in Several Variables). Before this, I have supervised exercises in the mentioned courses and in the courses Analysis III, Numerical Analysis, Topology, Complex Analysis a, Introduction to Mathematics and Primitive Analysis. The scope of the lectured courses is 33 ECTS and the scope of the exercises is in total 33 ECTS + 36 ECTS.

In addition, I have worked as the IT support person of the department for 11 months during 2018. I have also been updating the web pages of e.g. Institute of Photonics.

I have also supervision experience. Based on the postdoc working period of spring 2019, I am the second supervisor of one doctoral student. I have been thrice a student tutor for Finnish students and I have assisted the international students of the department in practical matters.

I have given fluent mathematical presentations in international conferences. I have also e.g. introduced the department in Abitour visits to highschools in Finland.

Competence

I completed the subject teacher pedagogical studies as a part of my M.Sc. degree and graduated as a qualified teacher of mathematics and physics on 20.09.2013. I hold a doctoral degree. I completed my PhD in

mathematics on 15.6.2017 on complex analysis. I have worked as a postdoctoral researcher for 3 months during 7-9/2017 and for 8 months during 12/2018-7/2019.

On 4.6.2021, I gave a 20 minute teaching sample as a part of job interview for a university lecturer position in University of Eastern Finland. The teaching sample was given through Teams. In the teaching sample, I discussed the inverse and conjugate of a complex number by using a video camera and the chalk board. In addition, I presented my self made visualizations of the complex plane. According to a statement from the vice head of the department, I performed in an excellent way.

I have the skill to teach university level mathematics courses and to use technology as a support in a meaningful way. In addition, I have participated in the developing of teaching in the department. I have good readines to supervise students and I have excellent IT skills for e.g. updating web pages and solving different malfunction situations.

I am a passionate and a versatile teacher and who works hard to achieve his goals and has good performance skills.

Societal impact

I am the editor-in-chief in two journals. Metodologia is a peer-reviewed international journal in methodology and was established in 2020. I am the editor-in-chief of Metodologia which currently rates as JUFO1. In 2019, I established the UEFDSA newspaper, a journal of the University of Eastern Finland Doctoral Student Association. I am the editor-in-chief of the journal.

Future prospects

I aim to teach various mathematics courses in university and to develop visualizations to support the topics. In particular, I aim to develop 3D visualizations and planar mapping visualizations to be embedded in browsers.

I aim to supervise Bachelor's and Master's theses on both mathematical topics and visualization topics. Some of the theses will also discuss the effectiveness of the visualizations in teaching.

I aim to supervise talented PhD students on topics related to complex analysis, harmonic mappings and geometric analysis.

I aim to continue my editorial activities and to improve the journals related to me.