

DR. PETER ZORVE

Data Scientist / Computational Chemist

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Profile Information

Background in mathematics, computer science, and chemistry. Over 12 years of experience in teaching, research, data analysis, simulations, and visualization. Demonstrated expertise in generating innovative ideas, and applying, and utilizing state-of-the-art knowledge and techniques in resolving teaching and industrial challenges. Currently working with EduZolve Oy in building user-friendly educational platforms for high school students.

Education

- ✓ **Data Science, Machine and Deep Learning, Software Engineering (2022)** Epicode Global School, Italy
- ✓ **Postdoctoral Researcher in Chemistry (2021)**, University of Eastern Finland, Finland
- ✓ **Doctor of Philosophy in Chemistry (2020)**, University of Eastern Finland, Finland
- ✓ **Master of Science in Chemistry (2018)**, University of Eastern Finland, Finland
- ✓ **Bachelor of Science in Chemistry (2014)**, University of Cape Coast, Ghana

Current Position

Software Developer and Co-founder of EduZolve Oy, (2022 – Present), Finland

- ✓ Contributing to the development of iOS and Android educational apps and the design and implementation of the company website's front-end and back-end functionalities.
- ✓ We have been actively collaborating with several organizations such as the Joensuu Business, Joensuu Draft program, and a few others to launch an educational app for West African students.
- ✓ Collaborated with cross-functional teams to develop and execute integrated marketing campaigns that leveraged social media to meet business objectives.
- ✓ Prepare and implement comprehensive coding/software plans for high school students.
- ✓ Analyze problematic situations and occurrences and provide solutions to ensure company survival and growth.

Work & Research Experiences

Postdoctoral Researcher (2021), Chemistry Department, University of Eastern Finland, Finland

- ✓ Taught and supervised international master's students in chemistry.
- ✓ Created computer simulations and modeled structures for research.
- ✓ Conducted Exploratory Data Analysis (EDA) on collected results.
- ✓ Wrote scientific articles and examined other scientific materials for the department.

Early-Stage Research Chemist (2018), University of Eastern Finland

- ✓ Taught and supervised international master's students in chemistry.
- ✓ Attained novelty discovery in computational chemistry.
- ✓ Simulated molecular compound behavior and used results to predict attributes of others.
- ✓ Carried out Exploratory Data Analysis (EDA) and presented findings at seminars and conferences.
- ✓ Reviewed scientific materials, evaluated theses, and wrote scientific publications for the department.

Research and Teaching Assistance (2015), University of Cape Coast, Ghana

- ✓ Created computer simulations and modeled structures for research purposes.
- ✓ Conducted Exploratory Data Analysis (EDA) on research data to extract insights.
- ✓ Analyzed and reported on the performance of several ML models and used data-driven insights to optimize and improve work effectiveness.
- ✓ Assisted the lecturers with teaching bachelor's students.
- ✓ Prepare and implement tutorial lectures to prepare students for their final examinations.
- ✓ Marked examination scripts of the bachelor students.
- ✓ Supervised bachelor students during their examination period.

Science and Mathematics Teacher (2014), Peter Hold-Brock Smith Senior High School, Ghana

- ✓ Taught Science and Mathematics to High School students.
- ✓ Prepared comprehensive lecture notes for lecturing.
- ✓ Supervised and marked examination scripts of the students.

Research and Academic Proficiencies

Density Functional Theory
Gaussian / GaussView Suite
Mass Spectrometry

Molecular Modeling
Data Analysis
IR Spectroscopy

Practical Molecular Modeling
X-Ray Diffraction
Molecular Optimization

Energy Calculations
NMR Spectrometry
Molecular Simulation

Technical Proficiencies

- ✓ **Programming Language:** Python, JavaScript
- ✓ **Concepts:** Data Science/Analysis, Machine Learning, Deep Learning, AI Engineering, OOP, Computer Vision, NLP.
- ✓ **Libraries:** Pandas, NumPy, Flask, SciKit Learn, Spacy, Beautiful Soup, Matplotlib, OpenCV, Spacy, PyTorch.
- ✓ **Web Technology:** AWS, HTML, SQL, PostgreSQL, Spark, Bootstrap, Flask, CSS, Docker, Docker Compose.

Machine Learning, Deep Learning, and Other Projects

- ✓ **EduZolve's iOS and Android App:** Facilitates high school students to improve educational performances.
- ✓ **Document Summarizer:** Accepts and summarizes lengthy text documents.
- ✓ **Toxic Comment Detection:** Determines toxic/other category comments.
- ✓ **Generalized Machine Learning Predictor:** The model is able to perform EDA, train, and make predictions on any data provided.

Awards and Recognitions

- ✓ Faculty of Science and Forestry Dissertation Scholarship, **(2020)**, University of Eastern Finland, Finland
- ✓ Fortum Foundation's Scholarship for Doctoral Students, **(2018)**, Fortum Säätiö Foundation, Finland
- ✓ International Master's Degree Program for Research Chemist Scholarship, **(2016)**, University of Eastern Finland, Finland

Affiliations and Positions Held

- ✓ **President**, African Students Association, University of Eastern Finland (2020)
- ✓ **Public Relations Officer**, African Students Association, University of Eastern Finland (2018)
- ✓ **President**, Ghana National Students' Chemical Society, Ghana (2014)
- ✓ **President**, Ghana Students' Chemical Society, University of Cape Coast, Ghana (2012)

Scientific Publications & Dissertations

- ✓ Catalytic Reactions of Magnesium Dichloride Clusters Saturated by Titanium Tetrachloride, Molecular Catalysis, 499, (2021), 111314
- ✓ Saturation of Magnesium Dichloride Crystallites by Titanium Tetrachloride, Surface Science, 699, (2020), 121627
- ✓ Adsorption of Titanium Tetrachloride on Magnesium Dichloride Clusters, ACS Omega, 3, (2018), 9921
- ✓ Structures and Reactions of TiCl_4 -Adsorbed MgCl_2 -Crystallites in Ziegler-Natta Olefin Polymerization Catalysis, Doctoral Dissertation
- ✓ Saturation of Magnesium Dichloride Crystallites by Titanium Tetrachloride, Masters Dissertation

Other Scientific Research

- ✓ Highly Efficient OLED Lighting Based on Rotating Molecules
- ✓ Amine Ligands of Light Emitting CMA-Complexes
- ✓ Two Coordinate Coinage Metal Complexes for OLEDs: Effects of Substitution on the Amide Ligand
- ✓ Effect of Methanol as a Model Internal Electron Donor on the Stability of Magnesium Dichloride Surfaces in the Heterogeneous Ziegler Natta Catalyst System: A DFT Study
- ✓ Alkylation of Titanium Tetrachloride on Magnesium Dichloride Clusters

Collaborations

- ✓ EduZolve Oy collaborates with University of Eastern Finland.
<https://www.uef.fi/en/article/from-west-africa-to-finland-for-higher-education-and-entrepreneurship-peter-and-oluseguns>

- ✓ EduZolve Oy collaborates with Joensuu Draft Program
<https://draftprogram.com/en/apply-in-joensuu/>

Language

English – Fluent