Tlegen Kamidollayev

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SUMMARY

I have recently completed my Ph.D. in Mechanical Engineering at the University of Massachusetts Lowell. My area of expertise is developing computational tools to solve complex engineering problems. I have been doing research under the guidance of Professor Juan Pablo Trelles that focuses on simulating low-temperature plasma-liquid interactions. I also interned at Red Hat at the Thoth Station team to optimize software stack recommendations for Python applications. Beyond school, I spend my leisure time either experimenting in the kitchen, learning languages or playing saxophone.

EDUCATION

University of Massachusetts Lowell *May 2023*

Ph.D. in Mechanical Engineering

Dissertation: "Modeling of Reactive Species Transport in Plasma Jet Impinging on Water"

Advisor: Juan Pablo Trelles

Moscow Institute of Physics and Technology

M.S. with Honors in Applied Mathematics and Physics *June 2017*

Dissertation: "Comparative Analysis Of Numerical Methods For Solving Melting-Solidification Problems Of Materials With A Distributed Heat Source"

B.S. in Applied Mathematics and Physics *June 2015*

Dissertation: "Numerical Analysis of Measures Effectiveness to Manage Heavy Accidents on RBMK-1000 Nuclear Reactor With the Drying of All Technological Channels"

EXPERIENCE

Graduate Research Assistant Sep. 2018 - Present

University of Massachusetts Lowell | Lowell, MA

- Developed and validated numerical models for plasma-liquid interaction simulations on a cluster (C++, HPC).
- Created scripts for the automated pre/post-processing simulation results (~10^7 data points) (C++, Python, bash).
- Communicating progress and results to 2 research groups in weekly meetings.
- Computationally analyzed performance of phase change materials enhanced air heat exchangers for thermal control in residential buildings for shape optimization study (COMSOL).
- Recommended the optimal design of stacked panel layer packaging that is 51% faster than initial.
- Writing publications in peer-reviewed scientific journals.

AIDevOps Software Engineering Intern May 2021 - Aug. 2021

Red Hat | Boston, MA

- Teamed with 9 people to implement an automated mechanism for suggesting Python package names based on imports supplied (Python, Docker, CI/CD).
- Created an endpoint on User API of Thoth Station. Saved hundreds of hours on the debugging of imports and package names inconsistencies in Python software (Python, OpenAPI).

Teaching Assistant Sep. 2018 - May 2019

University of Massachusetts Lowell | Lowell, MA

- Taught 90 undergraduate students to work with Plastics Engineering laboratory equipment.
- Educated necessary theoretical background to guide them in their solutions and support in debugging.

SKILLS

Programming: C++, Python, MATLAB, Bash, Git, GitHub, NumPy, Matplotlib, Selenium, HPC, Docker, Linux, CI/CD
Design & Simulation: OpenFOAM, COMSOL, Ansys, SolidWorks, Pointwise, Paraview
Languages: English, Kazakh, Russian, and Spanish (Fluent)
Awards: Full scholarships for Bachelor's (2011), Master's (2015), and Ph.D. (2018) studies

PEER-REVIEWED PUBLICATIONS

- Parametric Study of Panel PCM–Air Heat Exchanger Designs, published in Energies (2022)
- Modeling of Reactive Species Interphase Transport in Plasma Jet Impinging on Water, submitted to Journal of Physics Part D: Applied Physics (2023)
- Dynamic Thermal Performance Analysis of PCM Products Used for Energy Efficiency and Internal Climate Control in Buildings, submitted to Buildings (2023)