

# Tlegen Kamidollayev

tlegen.kamidollayev@gmail.com | (857) 891-5590 | Lowell, MA | [LinkedIn](#) | [GitHub](#) | [Google Scholar](#)

## 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"*

### 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

### Research Assistant

Sep. 2018 - Present

*Re-Engineered Energy Laboratory | 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 ( $\sim 10^7$  data points) (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, 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, OpenMP, MPI, HPC

**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)