Mehdi Mahmud

➔ *Full-Stack Web Developer*

➔ *Scientific Researcher*

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https://mehdimahmud79.github.io/portfolio/

https://github.com/MehdiMahmud79

ABOUT ME /OBJECTIVES

Full-stack web developer and scientific researcher with a passion for coding and problem solving situated in Birmingham. As a skilled programmer, I can adapt to all stages of advanced programming. I am confident in my technical skills which range from coding and user interface to testing and debugging procedures. I hold a PhD in Applied Mathematics from the University of Birmingham and since 2000 I have gained experience in several different domains which include academic research, lecturing, IT, and professional video editing. More recently, I completed an intense Full-Stack Web Developer Bootcamp at the University of Birmingham, which I completed in November 2021 having obtained an overall grade of A+.

I look forward to offering my skills as a Full Stack web developer in the future as part of a fast-paced yet quality-driven team.

SKILLS

Web Languages / Technologies used:

JavaScript, Express.Js, Node.Js, React, CSS, HTML, Tailwind, Bootstraps, MySQL, MongoDb, Sequelize, Jest, Apollo Server , JWT, GitHub

Other Languages and Software

Fortran, Matlab, Visual Basic, Adobe Premiere, Microsoft Office, 3d Software (Abaqus).

PERSONAL SKILLS

- Confident in leading a department, teaching and working in a team.
- High level of coding and technical literacy.
- Years of experience in problem solving and logic.
- Advanced Mathematical and IT knowledge.
- Adaptable to different work environments.
- Open to learning and expanding knowledge.
- Diligent and successful in completing and multitasking long-term projects.
- Strong communicative and organizational skills.
- Strong work-ethic and punctuality.

PROJECTS |

Find all of my projects at: https://mehdimahmud79.github.io/portfolio/

- InQuizitive

  Senior Developer (Developing the BackEnd and Manage the FrontEnd React Framework)

- MovieTime

  Senior Developer (Developing the BackEnd and fixing the Problems in the FrontEnd)

- HolidayPlanner

  Developer (WebPageStyling using tailwind and Api requests).

EDUCATION

Bootcamp Certificate | MAY2021-NOV2021 **Full Stack web Development |*University of Birmingham***

Gained proficiency in front end and back end technologies through a dynamic full stack curriculum, including HTML5, CSS3, JavaScript, jQuery, Bootstrap, Express.js, React.js, Node.js, Database Theory, MongoDB, MySQL, Git,

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PhD. | OCT 2015-JUL 2020 **Applied Mathematics | *University of Birmingham***

Developed a software to simulate Bubble Dynamics using parallel programming in Fortran language.

"MICROBUBBLE DYNAMICS NEAR RIGID BOUNDARIES"

Msc. | OCT 2007 – JUL 2009 **Computational Mathematics | *Salahaddin University-Erbil***

Developed a software to solve some types of integral equations using Matlab.

"APPROXIMATION METHODS ON SOLVING A SYSTEM OF LINEAR 2D FREDHOLM INTEGRAL EQUATIONS"

BSc. | OCT 1998 – JUL 2002 **General Mathematics | *Salahaddin University-Erbil***

Produced a multi-language application using *Visual Basic* to secure text documents using some advanced cipher systems.

*" USING PRIMITIVE POLYNOMIALS IN **BLOCK CIPHER** TO CREATE A SECURE APP USING VISUAL BASIC"*

EXPERIENCE

➢ **Research Fellow | SEP 2019 – MAY 2021**

University of Birmingham

In collaboration with the School of Dentistry, my main pieces of research involved improving the cavitation around ultrasonic dental scalers.

- Using ABAQUS and the finite element approach to conduct a numerical study for an ultrasonic dental scaler
- Developing a novel mathematical model to calculate the amount of cavitation near a dental implant. This model is now being used as a method of improving dental cleaning techniques
- Participating in teamwork by performing experiments in a lab environment. The lab results were used to compare and validate computational results
- Publishing an academic paper in Jove Scientific Journal

➢ Teaching Assistant | Jan 2015 – Dec 2019

University of Birmingham

During my Ph.D. study in the school of Mathematics, I worked as a part-time teaching assistant.

- Assisting undergraduate students in their educational endeavours
- Developing their knowledge of several different mathematical fields: **Numerical Analysis, Computational Mathematics using Maple, Mathematical Biology, C++ programming, and logic**).
- Keeping up-to-date with upcoming topics so that I was able to answer any of the students' queries.
- Grading work and providing feedback
- Invigilating examinations

➢ Lecturer and Undergraduate Administrator | Sep 2009 – Sep 2014

University of Salahaddin-Erbil

Full-Time Assistant lecturer at Mathematics Department / College of Science to teach (**Introduction to Cryptography, Matlab, Visual Basic, Advanced Calculus, Computational Mathematics, Numerical Analysis**).

As a Lecturer and Undergraduate Administrator, my role was to

- Organize timetables and examinations
- Provide lectures, educational resources, and advice for undergraduates
- Supervising final year students in their projects
- Building staff-student rapport

During my time at the university, I briefly took on the position of the Head of School for six months. This role allowed me to:

- Develop a firm understanding of the needs of both staff and students by offering advice, holding meetings, and solving any issues.
- Mediating inquiries between students and members of staff
- Manage and distribute financial resources
- Communicate with other schools within the University to organize research collaborations and conferences.
- Be an active member of the examination committee for the College of Science.

➢ Teaching Assistant | Jan 2003 – Sep 2007

University of Salahaddin-Erbil

As a Full-Time Teaching Assistant at the Mathematics Department, my roles included

- Teaching students in the following fields of mathematics and computing: *Computer programming using visual Basic, advanced calculus, Computational Mathematics using Matlab, Cryptography systems, Latex Package*
- Providing support to students during their academic endeavours by providing them with resources and advice
- Researching and applying different teaching techniques to communicate mathematical concepts effectively to different learning types.

Due to my background in computational skills, I was selected as a member of the Examination Committee whilst also being a Teaching Assistant. This role included

- Data entry
- Creating a data-base of results
- Preparing results certificates.

➢ IT and Video Editor | Jan 2000 – Dec 2014

During my time in Higher Education, I also worked as a part-time professional Video Editor for several different TV channels (Iraqia TV, Zagros Tv, and Gulan TV).

- As the head of the Graphics and IT Department, I taught my colleagues how to solve general as well as technical IT problems.
- Providing virtual lessons to the public on video editing and general IT knowledge
- Using Adobe Premiere Pro and Avid NewsCutter to edit and dub news reports, TV shows, and video clips.

Training Courses

- Academic Consultancy – One Day Workshop, University of Birmingham Enterprise Limited, 29th May 2019.
- Software Carpentry – Python, the workshop focused on Python and the curriculum will include: The Unix Shell, Version Control with Git, and Programming with Python, University of Birmingham, UK, 27th and 28th December 2018
- Mathematical Analysis of Incompressible Fluid Flows. A Sussex School and Workshop on the Navier-Stokes and Euler Equations. University of Sussex, Brighton, UK,18-22 September 2017.

Publications

1. Wang, Q., Mahmud, M., Cui, J., Smith, W.R. and Walmsley, A.D., 2020. Numerical investigation of bubble dynamics at a corner. *Physics of Fluids*, *32*(5), p.053306.
2. Vyas, N., Mahmud, M., Wang, Q.X. and Walmsley, A.D., 2020. Imaging and Quantification of the Area of Fast-Moving Microbubbles Using a High-Speed Camera and Image Analysis. JoVE (Journal of Visualized Experiments), (163), p.e61509.
3. Rostam K. Saeed and Mehdi H. Mahmud, Solution of a system of two-dimensional linear Fredholm integral equations of the second kind by quadrature methods, Australian Journal of Basic and Applied Sciences, Vol.3, No.3 (2009), 1701-1715.
4. Mehdi H. Mahmud and Rostam K. Saeed, Numerical Solution of System of Two-DimensionalLinear Fredholm Integral Equations of the Second Kind by Adomian Decomposition Method, Proceeding of the 4th International scientific conference of Salahaddin University-Erbil, October 18-20, Vol.1 of 4 (2011), 31-34.fa

Research Interests

- ❖ Bubble dynamics; Modeling Cavitation
- ❖ Boundary integral method
- ❖ Numerical Modeling; Computational Fluid Dynamics.
- ❖ Abaqus ; Modeling Cavitation around ultrasonic dental scaler.