

# Mir Hossein Negahban

## PERSONAL INFORMATION

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Date of birth: 30 July 1993

425 rue de la Montagne Apt. 9106B, Montreal, Qc, Canada

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 [www.researchgate.net/profile/Mir-Hossein-Negahban](http://www.researchgate.net/profile/Mir-Hossein-Negahban)

 [www.linkedin.com/in/mirhossein](http://www.linkedin.com/in/mirhossein)

 <https://orcid.org/0000-0002-7502-0925>

## EDUCATION

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<b>Ph.D.</b> Aerospace Engineering Research Laboratory in Active Controls, Avionics and Aeroservoelasticity (LARCASE) Department of System Engineering, École de Technologie Supérieure ÉTS, Montreal, Quebec, Canada	Jan 2022- Present
<b>M.Sc.</b> Mechanical Engineering- Fluid Mechanics Tabriz University, Tabriz, Iran, Total GPA: 3.63	2015-2017
<b>B.Sc.</b> Mechanical Engineering Tabriz University, Tabriz, Iran, Total GPA: 3.2	2011-2015
<b>High School Diploma</b> - Physics & Mathematics Ferdosi High school, Tabriz, Iran	2007-2011

## HONORS AND ACHIEVEMENTS

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- Ranked 3<sup>rd</sup> among the 34 graduate students at the end of M.Sc. studies (2017).
- Ranked 90 among 10,000 participants for the national Entrance Examination of M.Sc. studies in Aerospace engineering (2015).
- Winner of the Scholarship of “Substance de diffusion de la recherche”, Sept. 2023,  
<https://substance.etsmtl.ca/technologie-de-drones-de-nouvelle-generation-appliquee-a-luas-s45>

## RESEARCH EXPERIENCE

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- **Ph.D. Thesis:** Numerical simulation of aircraft using morphing wing technology
- **M.Sc. Dissertation:** Numerical Investigation of Aerodynamic Specifications of Bio-inspired Morphing Airfoils in Transonic Regime using Fluid-Structure-Interaction (FSI), 2017.
- **B.Sc. Final project:** Thermal Analysis and Energy Optimization in Additive Manufacturing (3D-printing), 2015.

## Research projects and Lectures:

- Numerical analysis of chaotic motion of a pendulum attached to a spring with horizontal oscillating joint by C code and MATLAB, Advanced Numerical Analysis course, 2015.
- Numerical analysis of surface temperatures of a closed configuration by C code, Radiation heat transfer course, 2016.
- Modeling and numerical simulation of a double tube heat exchanger by using COMSOL Multiphysics, Advance Heat Exchanger Design course, 2016.
- Two comprehensive lectures on “similarity solution for electrically conducting non-Newtonian fluids over a vertical porous-elastic surface”, and “explicit solutions of wall jet flow subject to a convective boundary condition”, Boundary Layers course, 2015.
- A comprehensive lecture on “space-based solar power (SBSP)”, Radiation Heat Transfer course, 2016.
- A comprehensive lecture on “Smagorinsky and related models in simulation of large eddies”, M.Sc. seminar presentation title, 2016.

## SCIENTIFIC CONTRIBUTION

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Author:

- Bashir, M.; **Negahban, M.H.**; Botez, R.M.; Wong, T. Numerical Simulation of the Transient Flow around the Combined Morphing Leading-Edge and Trailing-Edge Airfoil. *Biomimetics* 2024, 9, 109. <https://doi.org/10.3390/biomimetics9020109>
- **Negahban, M.H.**, Bashir M., Traisnel, V., Botez, R.M., “Seamless Morphing Trailing Edge Flaps for UAS-S45 Using High-Fidelity Aerodynamic Optimization”, *Chinese journal of Aeronautics*, 37(2), 2024, pp. 12-29. DOI: <https://doi.org/10.1016/j.cja.2023.10.024>
- Bashir M., **Negahban M.H.**, Botez, R.M., Wong T., “Aerodynamic Flow Control using a Dynamically Morphing Leading Edge (DMLE) for the UAS-S45 Airfoil”, AIAA AVIATION 2023 Forum, San Diego, USA, June 2023. <https://arc.aiaa.org/doi/10.2514/6.2023-3746>
- **Negahban, M.H.**, Bashir, M., Botez, R.M. Impact of Free-Form Deformation Control Points on the Optimization of the UAS-S45. *New Technologies and Developments in Unmanned Systems. ISUDEF 2022. Sustainable Aviation. Springer, Cham., 2023.* [https://doi.org/10.1007/978-3-031-37160-8\\_4](https://doi.org/10.1007/978-3-031-37160-8_4)
- **Negahban, M.H.**, Bashir M., Botez, R.M., “Free-Form Deformation Parameterization on the Aerodynamic Optimization of Morphing Trailing Edge”, *Journal of Applied Mechanics*, 4(1), 2023, pp. 304-316. <https://www.mdpi.com/2673-3161/4/1/17>
- **Negahban, M.H.**, Bashir, M., Botez, R.M., “Aerodynamic Optimization of a Novel Synthetic Trailing Edge and Chord Elongation Morphing: Application to the UAS-S45 Airfoil”, AIAA SciTech 2023 Forum, Chicago, USA, January 2023. <https://arc.aiaa.org/doi/10.2514/6.2023-1582>
- **Negahban, M.H.**, Botez, R.M., “Morphing Trailing Edge with Seamless Transition Flaps: A High-Fidelity Optimization Study”, *Book of Abstracts - International Conference of Aerospace Sciences "AEROSPATIAL 2022"*, 13 - 14 October 2022, Bucharest, Romania, Hybrid Conference, ISSN 2067–8614; ISSN-L2067–8614. [https://aerospatial-2022.incas.ro/files/book\\_of\\_abstracts\\_aerospatial-2022.pdf](https://aerospatial-2022.incas.ro/files/book_of_abstracts_aerospatial-2022.pdf)

- **Negahban, M.H.**, Bashir, M., Botez, R.M., “Impact of Free Form Deformation Control Points on the Optimization of the UAS-S45”, ISUDEF 2022 Conference, Madrid, Spain.
- **Mir Hossein Negahban.**, Ruxandra M. Botez, Seyed Esmail Razavi., “New Method for the Flow Modeling around chord-wise Morphing Airfoil”, AIAA SciTech 2022 Forum, Seattle, USA, January 2022, p. 2574, <https://doi.org/10.2514/6.2022-2574>
- **Negahban M. H.**, Razavi S. E., “Numerical Investigation of Flow Behavior Around Elastic Deformable Airfoil in Chordwise Direction”, Amirkabir Journal of Mechanical Engineering, 51(6), 2018, pp. 151-160. [https://mej.aut.ac.ir/article\\_2815\\_en.html](https://mej.aut.ac.ir/article_2815_en.html)

Reviewer:

- Journal of Aircraft Engineering and Aerospace Technology

## TEACHING EXPERIENCE

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COMSOL Multiphysics Instructor	2015-2017
<ul style="list-style-type: none"> <li>• <i>University of Tabriz Scientific Group,</i></li> </ul>	
English teacher (Part time)	2014-2017
<ul style="list-style-type: none"> <li>• <i>Pardis Language Ins.</i></li> </ul>	

## PROJECT SUPERVISION

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- 1- **Victor Traisnel**, M.Eng, École de Technologie Supérieure ÉTS, May 2022.  
Project : Study of the Hinged Trailing Edge Flaps of S45 Wing for Comparison of Performance with Morphing Seamless Flap.
- 2- **Noé Del Aguila**, B.Sc., École nationale supérieure de techniques avancées Bretagne, May 2022.  
Project : Aerodynamic Study of the Hinged Ailerons for UAS-S45.
- 3- **Clovis Priolet**, B.Sc., École de l’Air et de l’Espace, April 2023.  
Project : Aerodynamic Analysis of Aileron and Winglet Influence and Comparison with Twist Morphing Aileron.
- 4- **Marie Noupoussi-Woumeni**, M.Eng, École de Technologie Supérieure ÉTS, June 2023.  
Project : Structural Analysis of Elephant Trunk Mechanism for Seamless Morphing Trailing Edge Flap.
- 5- **Alexandre Hallonet**, M.Eng, École de Technologie Supérieure ÉTS, June 2023.  
Project : Structural Analysis and Optimization of Elephant Trunk Mechanism for Seamless Morphing Trailing Edge Flap.
- 6- **Gabriel Risser** B.Sc., École nationale supérieure de techniques avancées Bretagne, May 2023.  
Project : Implementation of a fuel consumption model in a flight dynamics model.
- 7- **Stanislas Mouret** B.Sc., École nationale supérieure de techniques avancées Bretagne, May 2023.  
Project : Aerodynamic analysis of aileron and winglet influence and comparison with twist morphing trailing edge.
- 8- **Constance Nguyen** M.Eng., Ecole polytechnique Féminine (EPF), Aug. 2023  
Project : Structural Analysis of flexible skin for Seamless Morphing Trailing Edge (SMTE) Flap
- 9- **Tarek Saci** M.Eng, École de Technologie Supérieure ÉTS, Sept 2023.  
Project : Prototyping and experimental wind tunnel test of Seamless Morphing Trailing Edge (SMTE) Flap

## WORK EXPERIENCE

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|---|-----------|
| Executive Engineer (One-year Project)   | 2020-2021 |
| <ul style="list-style-type: none"><li>• <i>Tabriz Oil Refinery Company (TZ.ORC)</i></li></ul> |           |
| English translator and editor (Part time)   | 2011-2015 |
| <ul style="list-style-type: none"><li>• <i>Daqiq Ins.</i></li></ul>                           |           |

## MEMBERSHIP

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- AIAA Student Member

## PROFESSIONAL SKILLS

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Python, OpenFOAM, CATIA, ICEM CFD, Subsonic Wind Tunnel, COMSOL Multiphysics, MS Word / Excel/ PowerPoint / MS Project.

## LANGUAGE

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| <ul style="list-style-type: none"><li>• Azerbaijani</li></ul>           | Native    |
| <ul style="list-style-type: none"><li>• Persian</li></ul>               | Bilingual |
| <ul style="list-style-type: none"><li>• English (Fluent)</li></ul>      | Level: C2 |
| <ul style="list-style-type: none"><li>• German (Professional)</li></ul> | Level: B2 |
| <ul style="list-style-type: none"><li>• French (intermediate)</li></ul> | Level: B1 |