

Ayman A. Abed

Curriculum Vitae

Chalmers University of Technology
Department of Architecture and Civil Engineering, Division of Geology and Geotechnics
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PERSONAL INFORMATION

- Date of Birth: 6th June 1976
- Nationality: Syrian
- Marital status: Married



EDUCATION

- 2004-2008 Stuttgart University, Stuttgart, Germany
Doctoral degree in Geotechnical Engineering
- 2001-2003 Al-Baath University, Homs, Syria
MSc. in Geotechnical Engineering
- 1999-2001 Al-Baath University, Homs, Syria
Diploma in Geotechnical Engineering
- 1993-1998 Al-Baath University, Homs, Syria
BSc. in Civil Engineering

PEDAGOGICAL TRAINING

- 2019 Aalto University, Espoo, Finland
Course Design (5cr)
- 2019 Aalto University, Espoo, Finland
Learning and teaching in higher education (5cr)
- 2018 Aalto University, Espoo, Finland
A! Peda Intro (5cr)

EMPLOYMENT

- 2020-Now Chalmers University of Technology, Gothenburg, Sweden
Senior Lecturer, Geotechnical Engineering
- 2015-2020 Aalto University, Espoo, Finland
Postdoctoral Researcher
- 2013-2015 WESI Geotecnica Srl, Genoa, Italy
Researcher & Lead Numerical Analyst
- 2011-2013 Wadi International University, Homs, Syria
Lecturer, Civil/Geotechnical Engineering
- 2004-2008 Stuttgart University, Germany
Scientific Assistant, Geotechnical Engineering
- 1999-2003 Al-Baath University, Homs, Syria
Scientific Assistant, Geotechnical Engineering

INTERNATIONAL RESEARCH & DEVELOPMENT PROJECTS

- [EURAD](#): European Joint Research Programme on Radioactive Waste Management.
- [THEBES](#): THMC Behaviour of the Swelling Clay Barriers (bentonite).
- [THE LEANING TOWER OF PISA](#).
- [COGAN](#): Competency in Geotechnical ANalysis.
- [DAS-NAG](#): Data Acquisition System and Numerical Analysis for Geotechnics.

TEACHING EXPERIENCE

Lecturing:

- 2020-Now Chalmers University of Technology, Gothenburg, Sweden
- Hydrogeology and Geotechnics (BOM325 & BOM370)
- 2011-2013 Wadi International University, Homs, Syria
- Soil Mechanics
 - Foundation Engineering
 - Geotechnical Engineering Problems
 - Building Materials
 - Descriptive Geometry

Exercises:

- 2017-2020 Aalto University, Espoo, Finland
- Numerical Methods in Geotechnics (GEO-E2020)
- 2005-2007 Stuttgart University, Stuttgart, Germany
- Engineering Materials: Soils
 - Numerical Modelling of Soils
- 1999-2003 Al-Baath University, Homs, Syria
- Soil Mechanics
 - Foundation Engineering

PUBLICATIONS

- **Doctoral thesis**

Abed, A. (2008). [*Numerical Modeling of Expansive Soil Behavior*](#), Institute of Geotechnical Engineering, Stuttgart, Germany.

- **Peer-reviewed journal papers**

1. Scelsia G., Abed A., Della Vecchia G., Musso G., Solowski W. (2021). [Modelling the behaviour of unsaturated non-active clays in saline environment](#). *Engineering Geology*. DOI:10.1016/j.enggeo.2021.106441
2. Xiaoqin Lei, Siming He, Ayman Abed, Xiaoqing Chen, Zongji Yang, Yong Wu. (2021). [A generalized interpolation material point method for modelling coupled thermo-hydro-mechanical problems](#), *Computer Methods in Applied Mechanics and Engineering*. DOI: 10.1016/j.cma.2021.114080
3. Abed A., Korkkiala-Tanttu L., Forsman J. and Koivisto K. (2021). [3D Simulations of Deep Mixed Columns under Road Embankment](#), *Rakenteiden Mekaniikka (Journal of Structural Mechanics)*. DOI: 10.23998/rm.84590
4. Abed, A. & Solowski, W.T. (2020). [Finite element method algorithm for geotechnical applications based on Runge-Kutta scheme with automatic error control](#). *Computers and Geotechnics*. DOI: 10.1016/j.compgeo.2020.103841.
5. Abed A. & Solowski WT (2020). [Estimation of water retention behaviour of bentonite based on mineralogy and mercury intrusion porosimetry tests](#). *Géotechnique*. DOI: 10.1680/jgeot.18.P.220.
6. Abed, A. & Solowski, W.T. (2019). [Applications of the new thermo-hydro-mechanical-chemical coupled code 'Thebes'](#). *Environmental Geotechnics*. DOI:10.1680/jenge.18.00083.
7. Squeglia, N., Stacula, S., Abed, A., Benz, T., Leoni, M. (2018). [m-PISE A novel numerical procedure for pile installation and soil extraction. Application to the case of Leaning Tower of Pisa](#). *Computers and Geotechnics* 102, 206-215. DOI: 10.1016/j.compgeo.2018.06.005.
8. Abed, A. & Solowski, W.T. (2017). [A study on how to couple thermo-hydro-mechanical behaviour of unsaturated soils: Physical equations, numerical implementation and examples](#). *Computers and Geotechnics* 92, 132-155. DOI: 10.1016/j.compgeo.2017.07.021.
9. Abed, A. & Vermeer, P.A. (2009). [Numerical Simulation of Unsaturated Soil Behaviour](#). *International Journal of Computer Applications in Technology*, 2-12. DOI:10.1504/IJCAT.2009.022697

- **Other peer-reviewed publications**

1. Gupta, A., Abed, A., Solowski, W. (2021). [Analysis of key thermal coupled factors in modelling of bentonite barriers](#). *Third International Symposium on Coupled Phenomena in Environmental*. Japan. DOI: 10.3208/jgssp.v09.cpeg148.
2. Tuohino, M., Solowski, W., Abed, A., Koivisto, K. and Lei, X. (2021) [Application of the Frozen and Unfrozen Soil model to modelling effects of freeze-thaw on low-volume roads](#). *NGM 2020*, Helsinki, Finland. DOI:10.1088/1755-1315/710/1/012067.
3. Abed, A. & Solowski, WT (2020). [Modelling of unsaturated gas flow by Thebes code: Validation tests](#). *E-Unsat 2020*, Lisbon, Portugal. DOI: 10.1051/e3sconf/202019502005

4. Abed, A. & Solowski, WT (2019). [Simulation of swelling pressure evolution during infiltration in a bentonite block-pellet laboratory scale test](#). *7th Asia-Pacific Conference on Unsaturated Soils*, Japanese Geotechnical Society (JGS), Nagoya, Japan. DOI:10.3208/jgssp.v07.052.
 5. Abed, A., Solowski, T., Romero, E., Gens, A. (2018). [Inclusion of chemical effect in a fully coupled THM finite element code](#). *UNSAT2018 (The 7th International Conference on Unsaturated Soils)*, Hong Kong.
 6. Abed, A. & Solowski, W.T. (2017). [Validation of a Fully Coupled THM Finite Element Code: Simulation of CIEMAT Mock-Up Test](#). *The 15th International Conference of the International Association for Computer Methods and Advances in Geomechanics*, Wuhan, China.
 7. Abed, A. & Solowski, W.T. (2017). [Material Microstructure effects in Thermo-Hydro-Mechanical Modelling of Bentonite](#). *PanAM 2017*, Dallas, Texas, USA. DOI: 10.1061/9780784481684.034.
 8. Abed, A., Laitinen, M., Lämsä, J., Harjupatana, T., Solowski, W., Kataja M. (2016): [Hydro-mechanical modelling of MX-80 bentonite: one dimensional study](#). *E-Unsat 2016*, Paris. DOI: 10.1051/e3sconf/20160918005.
 9. Leoni, L., Abed A., Leoni, M., d'Attoli, M., Occhi, M., Siano, P. (2015). [Finite Element Modelling of Resin Improved Swelling Soil Based on ERT](#). *Near Surface Geoscience 2015 - 21st European Meeting of Environmental and Engineering Geophysics*. Turino, Italy. DOI: 10.3997/2214-4609.201413791.
 10. Abed, A., Carbonella, R., Cenni, G., Franceschini, M., Leoni, M., Leoni, L., Pancaldi, D. (2015). Stabilizzazione di terreni argillosi in regime parzialmente saturo: analisi numerica del sistema di consolidamento HBC 2015 in 5° IAGIG *Incontro Annuale dei Giovani Ingegneri Geotecnici* (COMITATO ORGANIZZATORE IAGIG). Rome, Italy.
 11. Abed, A. & Vermeer, P. A. (2006). [Foundation analyses with unsaturated soil model for different suction profiles](#). *Proc. NUMGE 06*, Graz, Austria.
 12. Abed, A. & Vermeer, P. A. (2006). [Numerical Simulation of Unsaturated Soil Behaviour](#). *First Euro Mediterranean Symposium on Advances in Geomaterials and Structures*, Tunisia.
- **Bulletins**
 1. Abed, A. (2007). [Numerical simulation of a trial wall on expansive soil in Sudan](#). *Plaxis Bulletin No.21*, 14-18.
 - **Technical reports**
 1. Väyläviraston ohjeita 35/2020 (2020) [Tie- ja rataleikkausten suunnitteluohje](#). Finnish Transport Agency.
 2. Abed, A., Korkiala-Tanttu, L. (2018). [Stability analysis for road-cutting Review, recommendations and examples](#). Finnish Transport Agency, Engineering and Environment. Helsinki 2018. Research reports of the Finnish Transport Agency 49/2018. 59 pages and 2 appendices. ISSN-L 1798-6656, ISSN 1798-6664, ISBN 978-952-317-608-9.
 3. Abed, A., Korkiala-Tanttu, L., Forsman, J. (2018). [3D Stress distribution modelling of deep mixing columns-Part II](#). Internal report, Aalto University. DOI: 10.13140/RG.2.2.35120.38400
 4. Abed, A., Korkiala-Tanttu, L., Forsman, J. (2017). [3D Stress distribution modelling of deep mixing columns-Part I](#). Internal report, Aalto University. DOI: 10.13140/RG.2.2.31764.94084
 5. Statibi, S., Leoni, M., Abed, A., & Vermeer, P.A. (2007). [FE Simulation of Installation and Loading of a Tube-Installed Pile](#), Institute of Geotechnical Engineering, Stuttgart.

INTERNATIONAL RECOGNITION

- Reviewer for *Soils and Foundations* (2017-Now).
- Reviewer for *International Journal of Heat and Mass Transfer* (2018).
- Reviewer for *Environmental Geotechnics* (2018-2020).
- Reviewer for *Cold Regions Science and Technology* (2018-Now).
- Reviewer for *Mechanics of Materials* (2019).
- Reviewer for *Applied Clay Sciences* (2019).
- Reviewer for *Computers and Geotechnics* (2020-Now).
- Reviewer for *Soil Dynamics and Earthquake Engineering* (2020).
- Reviewer for *International Journal of Geotechnical Engineering* (2021).

LANGUAGES

Arabic (mother tongue), English (fluent), German (good), French (good), Italian (fair), Finnish (basic).