

## Hussain Aziz SALEH's Curriculum Vitae

### SCIENTIFIC RESEARCH INTERESTS

Dynamic optimization (using artificial intelligence and geo-information technology) of real-life applications that combine sustainable integrated water resources management, climate change, early warning systems, risk analysis and the linkages between the environmental, regional, and spatial planning for disaster management and risk reduction.

### PUBLICATIONS

#### Published in international journals

- **Saleh, H.**, Allaert, G., and De Sutter, R., 2016. Towards Efficient Use of Water Resources Management: A Case Study of the Syrian Coastal Region. *International Journal of Water*. 10/1:28–54 (issn:1741-5322).
- **Saleh, H.** 2011. Support system based advanced process resolving models for water management in arid environment. *International Journal of Water Resources and Arid Environment*. 1/6:450–456 (issn:2079-7079)
- Rekiek, B., Delchambre, A. and **Saleh, H.**, (2006). Handicapped Person Transportation: An application of the Grouping Genetic Algorithm. *Journal of the Engineering Applications of Artificial Intelligence*. 19/511-520
- **Saleh, H.** & Vanden Berghen, F., (2005). Human Genome behaviour: a powerful mechanism for optimising the use of ST in Surveying Networks Design”. *GPS Solutions*, 9 (3), 201-211
- **Saleh, H.** and Chelouah, R., (2004). “The design of the Global Navigation Satellite Surveying Networks using Genetic Algorithms”. *Journal of the Engineering Applications of Artificial Intelligence*. 17/1:111-122
- **Saleh, H.**, (2003). “An Artificial Intelligent design for GPS Surveying Networks”. *GPS Solutions*, 7 (2): 101-108.
- **Saleh, H.**, and Dare, P., (2003). “Near-optimal design of Global Positioning System Networks using Tabu Search Technique”. *J. of Global Optimization*. 25 (2): 183-208.
- **Saleh, H.**, (2003). “Metaheuristics for Optimizing the Water Framework Directive based Geographic Information Systems. Science for Water Policy (SWAP), the European Commission, Research Directorate-General, Belgium, pp 195-215.
- **Saleh, H.**, (2002). “Optimal Design for GPS Surveying Networks using Operational Research”. *Journal of the Arab Institute of Navigation*. 17: 31-47.
- **Saleh, H.**, (2002). “Ants can successfully design GPS Surveying Networks”. *GPS World*,13(9): 48-60.

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- **Saleh, H.**, and Dare, P. J. (2001). "Effective Heuristics for the GPS Survey Network of Malta: Simulated Annealing & Tabu Search Techniques". *J. of Heuristics*. 7 (6):533-549.
- Dare, P. and **Saleh, H.**, (2000). "GPS networks design: logistics solution using optimal and near-optimal methods". *Journal of Geodesy*, 74: 467-478.

### Key Note papers

- Saleh, H., 2000. A computational Study of Heuristic Techniques for GPS Surveying Networks Scheduling. In the Eleventh Young Operational Research Conference YOR11, University of Cambridge, UK, 28-30 March.

### Published in the national journal

- قبيلي، عماد، عباس، جميل، صالح، حسين، العلي، مارينا. الواقع الحالي والمستقبلي لمياه الشرب في حوض نهر الكبير الشمالي. محافظة اللاذقية، باستخدام نموذج التخطيط والتقييم المائي WEAP21، مجلة بحوث جامعة حلب. العدد 122 لعام 2016.
- قبيلي، عماد، عباس، جميل، صالح، حسين، العلي، مارينا. اعداد قاعدة البيانات للمعطيات الثابتة اللازمة لنموذج التخطيط والتقييم المائي WEAP21 لحوض نهر الكبير الشمالي، مجلة بحوث جامعة حلب. العدد 122 لعام 2016.
- قبيلي، عماد، عباس، جميل، صالح، حسين، العلي، مارينا. اعداد قاعدة بيانات التربة لنمذجة حوض نهر الكبير الشمالي باستخدام نموذج التخطيط والتقييم المائي WEAP21 ، مجلة جامعة تشرين للبحوث والدراسات العلمية. 2017/7/13.
- قبيلي، عماد، عباس، جميل، صالح، حسين، العلي، مارينا. إدارة ماء الري الزراعي باستخدام نموذج MABIA-WEAP في حوض نهر الكبير الشمالي بسورية، المجلة السورية للبحوث الزراعية. 2018/12/4.

### Published in the Arabic journal

- Saleh, H., (2012). Global Navigation Satellites Systems (GNSSs) and its real life applications. Al-taqaddum Al-'lmi Magazine (The Scientific Advancement), Kuwait Foundation for the Advancement of Sciences. April No. 76, 67-72. (In Arabic)
- Saleh, H., (2010). Early Warning Systems and Disaster Management. Al-taqaddum Al-'lmi Magazine (The Scientific Advancement), Kuwait Foundation for the Advancement of Sciences. October No. 70, 34-30. (In Arabic)

- Saleh, H., (2010). Geo-information System and its importance in solving Environmental Problems. Al-taqaddum Al-'lmi Magazine (The Scientific Advancement), Kuwait Foundation for the Advancement of Sciences. June No. 69, 57-61. (In Arabic)

#### **Published in the Proceedings of International Conferences**

- Saleh, H., Ibrahim, A, Allaert, G., 2014. Development Planning Activities and linkages with Disaster Risk Reduction in Syrian Coastal Region. In the 1<sup>st</sup> International Conference on Civil Engineering (ICCE14), “Toward reconstruction and sustainable development”, Tishreen University, Lattakia, Syria, 4-6 August.
- Saleh, H., Alkamouh, A., 2014. Artificial Intelligence and Satellite Navigation Space Systems for Optimisation real-life Applications. In the 1<sup>st</sup> International Conference on Civil Engineering (ICCE14), “Toward reconstruction and sustainable development”, Tishreen University, Lattakia, Syria, 4-6 August.
- Saleh, H., Allaert, G., Boelens, L., De Maeyer, Ph. 2014. The Importance of the Transnational Planning in Disaster Management: A Case Study on the Future Cross-Border Regions Cooperation in Syria and Neighboring Countries. In the Annual Congress (AESOP), “From control to co-evolution”, Utrecht/Delft, The Netherlands, 9-12 July.
- Saleh, H., Allaert, G., 2012. Early Warning System based on Dynamic Optimisation for Tsunamis and other Hazards related to Sea Level Rise on Syrian Coastal Zone. In the 11<sup>th</sup> Biennial Conference of Pan Ocean Remote Sensing Conference (PORSEC 12), Kerala, India, 5-9 November.
- Saleh, H., 2010. Support System based Advanced Process Resolving Models for Water Management in Arid Environment. In the 4<sup>th</sup> International Conference on Water Resources and Arid Environment (ICWRAE 4), Riyadh, Saudi Arabia, 5-8 December.
- Saleh, H., Allaert, G., and Abbas, I., 2010. Spatial Solutions Based Geo-information Methods for Sustainable Integrated Water Resources Management. In the 4<sup>th</sup> International Conference on Water Resources and Arid Environment (ICWRAE 4), Riyadh, Saudi Arabia, 5-8 December.
- Saleh, H., 2009. Geo-information Technology and Dynamic Optimisation for Seismic Hazard and Risk Reduction in Syria. In the proceedings of the of the workshop on Active Tectonic Studies and Earthquake Hazard Assessment in Syria and Neighbouring Countries, Damascus, Syria, ASST, 17-19 November.
- Saleh, H., and Allaert, G., 2009. Water Reuse Applications & Planning Systems in Arid Areas. In the International Conference on Water Conservation in Arid Regions, Jeddah, Saudi Arabia, 12-14 October.
- Saleh, H., and Allaert, G., 2009. The importance of Managed Aquifer Recharge for Water and Environmental Protections. In the International Conference on Water Conservation in Arid Regions, Jeddah, Saudi Arabia, 12-14 October.

- Saleh, H., 2009. Practical Strategy based Scientific Research, Technology, and Innovation for Disaster Management and Risk Reduction in Arabic Countries. In the International Symposium on Disaster Management, Riyadh, Saudi Arabia, 3-7 October.
- Saleh, H., & Allaert, G., 2009. Optimal Decision making in Disaster Management and Risk Reduction using Early Warning System, Communications, & Geo-informatics. In the International Symposium on Disaster Management, Riyadh, Saudi Arabia, 3-7 October.
- Saleh, H., & Allaert, G., 2009. Mitigating flood disasters in Syria: a case study of the massive Zeyzoun dam collapse. In the workshop on safe water services in post-conflict and post-disaster contexts, World Water Week, Stockholm, Sweden 16<sup>th</sup> – 22<sup>th</sup> , August.
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- Saleh, H., 2009. An Advanced Testing Strategy based Artificial Intelligence Algorithms for Optimal Inspection Procedures. In the proceedings of the workshop on the Non-Destructive Testing and its rule in the Syrian Industry, Damascus University, 3-5 May.
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- Saleh, H., & Allaert, G., 2008. Geo-information Technology & Dynamic Optimisation for Seismic Hazard and Risk Reduction in Syria. In the proceedings of the International Conference on Remote Sensing Techniques in Disaster Management & Emergency Response in the Mediterranean Region, Zadar, Croatia, 22-24 September
- Saleh, H., Allaert, G., De Sutter, R., Kellens, W., De Maeyer, Ph., & Vanneuville, W., 2008. Intelligent Decision Support System based Geo-information Technology and Spatial Planning for Sustainable Water Management in Flanders. In the proceedings of the International Conference on Water & Urban Development Paradigms, “Towards an integration of engineering, design and management approaches”, Leuven, Belgium 14<sup>th</sup> – 19<sup>th</sup>, Sept., CRC Press, Taylor & Francis, London, pp: 283-288. ISBN 978-0-415-48334-6.

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- Kellens, W., Deckers, P., Saleh, H., Vanneuville, W., De Maeyer, Ph., Allaert, G., & De Sutter, R., 2008, A GIS tool for flood risk analysis in Flanders-Belgium. In the proceedings of the 6<sup>th</sup> International conference on computer simulation in risk analysis & Hazard Mitigation, “Risk 2008”, Cephalonia, Greece 5<sup>th</sup> – 7<sup>th</sup>, May, WIT Press, UK, pp: 21-27.
- Saleh, H., 2008. Optimal Design for Geomatic Networks to support Early Warning Systems for Natural & Environmental Disasters. In the Symposium Disasters’ Management & Safety of Buildings in Arab Countries, Riyadh, Saudi Arabia, 28 March- 2 April. The Ministry of Municipal & Rural Affairs Press, Riyadh, pp:555-569.
- Saleh, H., & Rukieh, M., 2008. The use of Geo-information Technology in establishing a Practical Methodology for dealing with Tectonic Mapping and Earthquake Information (Case study on Syrian Faults). In the Symposium Disasters’ Management & Safety of Buildings in Arab Countries, Riyadh, Saudi Arabia, 28 March- 2 April. The Ministry of Municipal & Rural Affairs Press, Riyadh, pp:539-553.
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- Saleh, H., & Allaert, G., 2007. Early warning decision support system based spatial planning & geo-information for earthquakes reduction in Syria. In the Proceedings of International Union of Geodesy and Geophysics, IUGG07, Perugia, Italy, 02-12 July.
- Saleh, H., & Allaert, G., 2007. Innovative Decision Support System based Artificial Intelligence and Spatial Planning for Disaster Risk Reduction. In the proceeding of the Joint Regional Conference On: Disaster: Relief and Management: International Cooperation & Role of ICT. Alexandria, Egypt, 14-17, April.
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- Saleh, H., and Allaert, G., 2006, Space and Information Technologies for Environmental Pollution Control and Risk Management. In the proceeding of the UN/ Syria/ European Space Agency Regional Workshop: on the Use of Space Technology for Disaster Management in Western Asia and Northern Africa. Syria, Damascus, General Organization of Remote Sensing, 22-26, April.
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- Oprea, C., Nicolescu, C., Loghin, V., Gorghiu, G., Saleh, H., and Szalansky P., 2005. Modeling the human health and environmental impacts status at Targoviste city area using neural network algorithms. In the proceedings of the Conference Integration of the New EU Member Countries into the GMES Programme, Warsaw Poland, (10 p, publication on CD – ROM), December 12-14.
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- Fidanova, S. and Saleh, H., 2005. Ant colony optimization for scheduling the surveying activities of satellite positioning networks. In the proceedings of the International conference on Information Systems and Data Grids, Sofia, Bulgaria, 17-18, February.
- Saleh, H., 2005. Dynamic optimisation of the use of ST for rapid disaster response and management. In the proceedings of the 2nd International Conference on information System for Crisis Response and Management, Belgium, 18-20, April.
- Saleh, H. and Fidanova, S., 2004. The optimal use of ST for the disaster management in the danube basin, In the proceedings of “The Danube and Europe: Integrated Space Applications in the Danube Basin” conference, Constantza, Romania”, 23-25 June.
- Saleh, H. & Fidanova, S., 2003. TS procedures for optimising GPS surveying networks. In the European Chapter on Metaheuristics conference, Antwerp, Belgium 18-19, December.
- Saleh, H., 2003. Metaheuristic algorithms for optimising the use of ST in DM. In the European Chapter on Metaheuristics conference, Antwerp, Belgium 18-19, December.

- Chelouah, R., and Saleh, H., 2003. Genetic Algorithms for Designing the Global Positioning System Networks. In the Proceedings of the 7th world multi conference on systemics, sybernetics and informatics SCI 2003, Orlando, Florida, USA, 27-30 July.
- Saleh, H., 2003. The Contribution of Operational Research to Effective Gravity Model Improvement. In the Proceedings of International Union of Geodesy and Geophysics, IUGG03, Sapporo, Japan, 30 June-12 July.
- Saleh, H., 2003. Introduction of the Artificial Intelligence of Optimising Important Geodetic Applications. In the Proceeding of International Union of Geodesy and Geophysics, IUGG03, Sapporo, Japan, 30 June-12 July.
- Saleh, H., 2003. Optimising Space Technology using Artificial Intelligence for Efficient and Effective Disaster Monitoring and Management. Presented at United Nations/Romania Regional Workshop on the Use of Space Technology for Disaster Management for Europe, Poiana-Brasov, Romania, 19-23 May.
- Saleh, H., 2003. Artificial Intelligence for optimizing the GNSS carrier phase-based positioning. In the Proceedings of the National Technical Meeting of the Satellite Division of the Institute of Navigation. California, USA, 22-24 January, pp 407:416.
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- Saleh, H., 2002. GPS Positioning Networks Design: An Application of the Ant Colony System. In the Proceedings of the Ant Algorithms: The Third International Workshop, ANTS 2002, Brussels, Belgium, 12-14 September.
- Saleh, H., 2002. Global Positioning System Positioning Networks Design: An Application of the Hybrid Optimisation Techniques. In the Proceedings of the Workshop on Real World Optimisation using Evolutionary Computing: The 7th International Conference on Parallel Problem Solving from Nature. Granada, Spain. 7-11 September.
- Saleh, H., 2002. Metaheuristics for optimising the use of GISs. In the Proceedings of the Euro-conference of the Science for Water Policy: The Implications of the Water Framework Directive, UK, University of East Anglia, 2-4 September.
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- Saleh, H., and Dorigo, M. 2001. Genetic Algorithms and Ant Colony Optimization for Designing GPS Surveying Networks. In the: The Impact of Genetics on Science and Society, Proceeding of the Marie Curie Fellowship Association (MCFA 01), University College Dublin, Ireland, 1-2 June.
- Saleh, H., and Dare, P., 2000. Heuristic Techniques to the Design of Global Positioning System GPS Networks. In the Proceeding of the UEL Postgraduate Workshops and Conference, University of East London, Docklands, UK, 9th June.

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- Saleh, H., and Dare, P., 1999. An Effective Tabu Search for Minimising Makespan for the GPS Surveying Network in the Republic of Seychelles. In the Proceeding of the YOR Researchers Forum, University of Sheffield, UK, 23-24 March.
- Saleh, H., and Dare, P., 1998. A Tabu Search Approach for Designing a GPS Surveying Network for the Republic of Malta. In the Proceedings of the 16th European Conference on Operational Research, Brussels, Belgium, 12-15 July.
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- Saleh, H., and Dare, P., 1997. A Simulated Annealing Approach for Designing a GPS surveying Network?. In the Proceedings of the 2nd Meta-heuristic International Conference (MIC'97), Sophia-Antipolis, France. 21-24 July.
- Dare, P., and Saleh, H., 1997. The Use of Heuristics in Design of GPS network: In Advances in Positioning and Reference Frames. In the Proceeding of the Scientific Assembly of the International Association of Geodesy, Riocentro-Rio De Janeiro, Brazil. 3-9 September, Springer Verlag, New York, USA, pages 120-124. ISBN 3-540-64603-3.
- Saleh, H., and Dare, P., 1997. A Heuristic Approach to The Design of GPS Networks. In the Proceeding of the United Kingdom Geophysical Assembly-21, University of Southampton, UK, 2-4 April.
- Saleh, H., and Dare, P., 1997. The Design of GPS Networks using the Heuristic Techniques. In the Proceeding of the Young Researchers Forum in Operational Research and Management Science, University of Southampton, UK, 17-18 April.

## **Chapters in Books**

- Saleh, H., & Allaert, G., 2012. Disaster Management and Risk Reduction: Impacts of Sea Level Rise and other Hazards related to Tsunamis on Syrian Coastal Zone (A Case Study on the Lattakia City). In: Typhoon Impacts and Crisis Management, (Eds. Tang & Sui), p. 481-536, ISBN: 978-3-642-40694-2 Springer-Verlag Berlin Heidelberg.
- Saleh, H., & Allaert, G., 2011. Scientific research based optimization and geo-information technologies for integrating environmental planning in disaster management. In: Remote Sensing of the Changing Oceans (ed. Tang), p. 359-390, ISBN: 9783-642-16540-5 Springer-Verlag Berlin Heidelberg.
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- Saleh, A., and Dare, P., 2002. "Heuristics for Improved Efficiency in the Use of the Global Navigation Satellite Systems (GNSS) for Establishing Positioning Networks". *Marie Curie Fellowship Annals* (MCFA). Vol. II: 62-74.

#### **Books**

- **صالح، حسين.** 2016. **الذكاء الصناعي والجيومعلوماتية لإدارة خطر الكوارث، دار الريان للنشر، المكتبة البريطانية، المملكة المتحدة،**
- Saleh, H., 2014. Artificial Intelligence for Global Positioning System Networks: Theory & Applications, LAP Lambert Academic Publishing, Germany.

#### **Transilation Books**

- Disaster Management: International lessons in risk reduction, response and recovery. Edited by A. López-Carresi, M. Fordham, B. Wisner, I. Kelman and JC Gaillard. This book is translated to Arabic under support of Arab Center for Arabization Translation Authorship & Publication (ACATAP) Branch of ALECSO, 2014, Damascus. Syria.

#### **Technical Reports**

- Saleh, H., 2002. Efficient Planning Strategies in Global Navigation Satellite Systems Applications: An Approach based on Artificial Intelligence. TR/IRIDIA/02-27, Université Libre de Bruxelles, Belgium.
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- Saleh, H., 2002. Optimising the GPS Ambiguity Search Space by Metaheuristic Techniques. TR/IRIDIA/02-29, Université Libre de Bruxelles, Belgium.
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- Saleh, H., 2002. Ants can successfully design GPS Surveying Networks. TR/IRIDIA/02-37, Université Libre de Bruxelles, Belgium.

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- Rekiek, B., Delchambre, A. and Saleh, H., 2003. Applying a Grouping Genetic Algorithm to the Pickup and Delivery Problem. TR/IRIDIA/03-13, ULB, Belgium.
- Saleh, H. A. and Chelouah, R., 2003. Genetic Algorithms for Designing the Global Positioning System Surveying Networks. TR/IRIDIA/03-14, ULB, Belgium.

#### **Published in the International Reports on Geodesy**

- Saleh, H., 1999-2002. Belgian Research on Geodesy. In the general report of the International Association of Geodesy, XXIII General Assembly of IUGG, Sapporo, Japan, June 2003.
- Saleh, H., and Dare, P., 1995-98. United Kingdom Research on Geodesy. In the general report of the International Association of Geodesy, XXII General Assembly of IUGG, Birmingham, UK, July 1999.