



Annual Faculty Scholarship Report for 2017-2018

JOURNAL PUBLICATIONS

School of Computing

W. Klostermeyer, M.E. Messinger, and A. Ayello, An Eternal Domination Problem in Grids, *Theory and Applications of Graphs*, Issue 1 of Volume 4 (2017) (23 pages)

W. Klostermeyer and M. Henning Italian Domination in Trees, *Discrete Applied Mathematics* 217 (2017), pp. 557-564

W. Klostermeyer and G. MacGillivray, Eternal Domination: Criticality and Reachability, *Discussiones Mathematicae Graph Theory* 37 (2017), pp. 63-77

W. Klostermeyer, M.E. Messinger, and A. Ayello, Disjoint Dominating Sets with a Perfect Matching, *Discrete Mathematics, Algorithms, and Applications* 9 (2017) (20 pages)

Ahuja, Sanjay, P., and Deval, N., Empirical evaluation of Cloud IaaS platforms using System-level benchmarks, *International Journal of Cloud Applications and Computing*, (IJCAC), volume 8(1), January 2018, pp. 80 – 96.

Ahuja, Sanjay, P., and Deval, N., From Cloud Computing to Fog Computing - Platforms for the Internet of Things (IoT), *International Journal of Fog Computing*, (IJFC), Volume 1, Issue 1, January 2018, pp. 1 – 14.

Umapathy, K., and Ritzhaupt, A.D. (2017). A Meta-Analysis of Pair-Programming in Computer Programming Courses: Implications for Educational Practice. *ACM Transactions on Computing Education (TOCE)*, vol. 17 (4), pp. 1 – 13

A. Dutta, P. Dasgupta, and C. Nelson. Distributed configuration formation with modular robots using(sub) graph isomorphism-based approach. *Autonomous Robots* (2018), pp. 1–21

School of Engineering

Muhammet Uludag, Remzi Cetin, Derya Dispinar, **Murat Tiryakioglu**, Effect of degassing and grain refinement on hot tearing tendency in al8si3cu alloy, *International Journal of Metalcasting* (2017)

Muhammet Uludag, Remzi Cetin, Derya Dispinar, **Murat Tiryakioglu**, On the interpretation of melt quality assessment of a356 aluminum alloy by the reduced pressure test: the bifilm index and its physical meaning, *International Journal of Metalcasting* (2018)

Muhammet Uludag, Remzi Cetin, Derya Dispinar, **Murat Tiryakioglu**, On the interpretation of melt quality assessment of a356 aluminum alloy by the reduced pressure test: the bifilm index and its physical meaning, *International Journal of Metalcasting* (2018)

Muhammet Uludag, Remzi Cetin, Derya Dispinar, **Murat Tiryakioglu**, The effects of degassing, grain refinement & Sr-addition on melt quality-hot tear sensitivity relationships in cast A380 aluminum alloy, *Engineering Failure Analysis* 90 (2018) 90-102

Pedram Yousefian and **Murat Tiryakioglu**, Pore Formation During Solidification of Aluminum: Reconciliation of Experimental Observations, Modeling Assumptions, and Classical Nucleation Theory, *Metallurgical and Materials Transactions A* 49A (2018) 563-575

G. Eisaabadi, GY Yeom, **Murat Tiryakioglu**, Nelson Netto, R. Beygi, M.Z. Mehrizi, SK Kim, The effect of solution treatment time on the microstructure and ductility of naturally-aged A383 alloy die castings, *Materials Science & Engineering A* 722 (2018) 1-7

Hüseyin Özdes and **Murat Tiryakioglu**, Walker Parameter for Mean Stress Correction in Fatigue Testing of Al-7%Si-Mg Alloy Castings, *Materials* 10 (2017) 1401

A. Timpanaro, R. Scherzer, O. Keifer, **P. Eason**, Analysis of Acetal Toilet Fill Valve Supply Line Nut Failure, *Case Studies in Engineering Failure Analysis* 9 (2017) 129-137

N. Netto, **M. Tiryakioglu**, **P.D. Eason**, "Characterization of Microstructural Refinement and Hardness Profile during the Friction Stir Processing of 6061-T6 Aluminum Alloy Extrusions," *Metals* 8 (2018) 552

P. Yousefian, **M. Tiryakioglu**, **P.D. Eason**, Quantification of Entrainment Damage in A356 Aluminum Alloy Castings, *Metallurgical and Materials Transactions A* (2018)

Kaisan, M. U., Anafi, F. O., **Nuszkowski, J.**, Kulla, D. M., & Umaru, S. (2017). Exhaust emissions of biodiesel binary and multi-blends from Cotton, Jatropha and Neem oil from stationary multi cylinder CI engine. *Transportation Research Part D: Transport and Environment*, 53, 403-414

M. U. Kaisan, F. O. Anafi, **J. Nuszkowski**, D. M. Kulla & S. Umaru (2017) Calorific value, flash point and cetane number of biodiesel from cotton, jatropha and neem binary and multi-blends with diesel, *Biofuels* <https://doi.org/10.1080/17597269.2017.1358944>

Ryskamp, R., Thompson, G., Carder, D., and **Nuszkowski, J.**, "The Influence of High Reactivity Fuel Properties on Reactivity Controlled Compression Ignition Combustion," *SAE Technical Paper 2017-24-0080* (2017)

Fuller, J, **Brown, Christopher**, and **Crowley, R.**, (2017). Performance-Based Maintenance Contracting in Florida: An Evaluation by Surveys, Statistics, and Content Analysis, *ASCE Journal of Construction Engineering and Management*, 144(2):05017021

Brown, Christopher J., (2017). Putting Aquifers to Work: MAR Applications in Nutrient Removal. *AWRA Water Resources: IMPACT*, 19(5):26-28.

David D. Biruk, **Chiu Choi**, and John Kang, Modeling of Integrated Recycle Heat Exchangers, *Journal on Power Systems Engineering*, i-Manager Publications, Vol. 5, No. 2, pp. 1-9, July 2017.

Mario Fulgencio, **Alexandra Schönning** “Gait Lines of Persons with Plantar Fasciitis”, *IEMS Journal of Management and Engineering Integration*, Vol 10, Issue 2, Winter 2017. ISSN: 1939-7994.

Crowley, R., Robeck, C., and Dompe, P. (2018). A three-dimensional computational analysis of bridges subjected to monochromatic wave attack. *Journal of Fluids and Structures*, 79 (2018), 76-93.

Fuller, J., Brown, C., and **Crowley, R.** (2017). Performance-based maintenance contracting in Florida: an evaluation by surveys, statistics, and content analysis. *Journal of Construction Engineering and Management*, 144 (2).

William Dally, Comparison of a mid-shelf wave hindcast to ADCP-measured directional spectra and their transformation to shallow water, *Coastal Engineering* 131 (2018) 12–30

William R. Dally and Daniel A. Osiecki, Evaluating the Impact of Beach Nourishment on Surfing: Surf City, Long Beach Island, New Jersey, U.S.A., *Journal of Coastal Research* 34 (2018) 793-805

Carolina Burnette and **William R. Dally**, The Longshore Transport Enigma and Analysis of a 10-Year Record of Wind-Driven Nearshore Currents, *Journal of Coastal Research* 34 (2018) 26-41

Amr El-Nemr, Ehab A. Ahmed, **Adel El-Safty**, and Brahim Benmokrane, (2018), Evaluation of the flexural strength and serviceability of concrete beams reinforced with different types of GFRP bars, *Journal of Engineering Structures* 173, pp. 606-619.

Ahmed H Ali, Brahim Benmokrane, Hamdy M Mohamed, Allan Manalo, and **Adel El-Safty**. (Feb. 2018). Statistical Analysis and Theoretical Predictions of the Tensile Strength Retention of GFRP Bars based on Resin Type. *Journal of Composite Materials* 52, <https://doi.org/10.1177/0021998318755866>.

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BOOK CHAPTERS

School of Computing

Ahuja, Sanjay, P., and Muthiah, K., *Advances in Green Cloud Computing*. Published in “Green Computing Strategies for Competitive Advantage and Business Sustainability”, IGI-Global Publishers, February 2018, pp 1-16.

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CONFERENCE PUBLICATIONS

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Raman, J., **Umapathy, K.**, and Huang, H. (2018). Security and User Experience: A Holistic Model for CAPTCHA Usability Issues. *Proceedings of the Southern Association for Information Systems (SAIS)*, Atlanta, GA, USA.

Asai Asaithambi, Swapnoneel Roy, Sandhya Turlapaty, Implementation and Performance Comparison of Some Heuristic Algorithms for Block Sorting, *2017 IEEE 17th International Conference on Bioinformatics and Bioengineering (BIBE)*, Oct. 2017 Washington, DC.

A. Ghosh, Online unit covering in L2, *Proceedings of the 27th Annual Fall Workshop on Computational Geometry*, 2017

School of Engineering

Avar, B.B. and **Hudyma, N.**, 2018. Surface fault rupture hazard and observations on current interdisciplinary research. Paper ARMA18-852. *Proceedings of the 52nd US Rock Mechanics / Geomechanics Symposium*, June 17-20, Seattle, WA, USA.

Hudyma, N., Davies, M., **Crowley, R.**, Ellis, T.N. and Miller, J., 2018. Microbially induced calcite precipitation for the improvement of porous building stone. Paper ARMA18-976. *Proceedings of the 52nd US Rock Mechanics / Geomechanics Symposium*, June 17-20, Seattle, WA, USA.

Harris, A., **Hudyma, N.**, Brown, S., and Oglesby, J., 2018, *Quantification of weathered limestone surfaces using fractal methods*. IEEE SoutheastCon 2018, April 5-10, 2018, Tampa FL, USA.

Nuszkowski, J., **Hudyma, N.**, and Polito, M. 2018, Thermal characterization of weathered limestone. *Proceedings of IFCEE 2018 – International Foundations Congress and Equipment Exposition*, March 5-10, 2018, Orlando, FL, USA.

B. Nazario-Casey and **O.P. Kreidl**, Robot navigation in unknown environments using priority-based scheduling, *IEEE Southeastcon*, Apr 2018, St. Petersburg, FL.

A. Alkadi, **Z. Prodanoff**, H. Chi and **O.P. Kreidl**, Evaluation of two RFID traffic model with potential in anomaly detection, *IEEE Southeastcon*, Apr 2018, St. Petersburg, FL.

Taylor Broussard, **Alexandra Schonning**, Susan Perez, Why Are There So Few Women in Engineering?, *IEMS Journal of Management and Engineering Integration*, *24th International Conference on Industry Engineering and Management Systems*; March 2018; Cocoa Beach, FL.

Connor Kelly, **Alexandra Schönning**, Susan Perez, Outreach Project Aimed at Increasing Gender Diversity in Engineering, *24th International Conference on Industry Engineering and Management Systems*; March 2018; Cocoa Beach, FL.

Matemu, C., and **Crowley, R.** (2018). Development of a physics-based model for predicting loading on bridges during water wave attack. National Hydraulic Engineering Conference, Columbus, OH.

Crowley, R., **Hudyma, N.**, Landon, M., Sharma, R., Akan, C., Brown, C.J., Dally, W.R., and Song, X. (2018). An assessment of hydraulic damages in northeast Florida from hurricane Irma. National Hydraulic Engineering Conference, Columbus, OH.

Ramaji, I.J., Gultekin-Bicer, P., **Crowley, R.W.**, and Lambert, D. (2017). Investigation of leveraging BIM standards to facilitate sustainability evaluations from early stages of design. International Workshop on Computing in Civil Engineering, Seattle, WA, June 24-28.

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External Funding

Crowley, R., Gelsleichter, J. (Dept. of Biology), Kopp, B., and **Dally, W.R.** Underwater noise level study during impact pile driving (2018-2022). \$459,742, Florida Department of Transportation, Tallahassee, FL.

Crowley, R., Davies, M. (Dept. of Chemistry), and Ellis, T. (Dept. of Biology). Bench-scale testing of microbial induced calcite precipitation (MICP) treated sand dunes (2018). \$6,000, University of North Florida Environmental Center, Jacksonville, FL.

Crowley, R. and Zimmerman, A. (U. of Florida) (2016-2019). Application of microbial induced calcite precipitation to stabilize Florida high-organic matter soils for roadway construction. \$208,487 (\$74,532 to UNF), Florida Department of Transportation, Tallahassee, FL.

Moehring, M. (Northeast Florida Regional Council), White, Q. (Jacksonville University), Johnson, A. (Jacksonville University), Lambert, D. and **Crowley, R.** (2015-2018). Maritime management plan development, planning, evaluation, and meeting facilitation for Duval County. \$200,000 (\$66,667 to UNF), City of Jacksonville, Jacksonville, FL.

Alexandra Schönning, “Outreach Aimed at increasing Participation of Girls in STEM”, YMCA, 3/28/18-8/31/19, \$7,390.

Umopathy, K. and Richar, D. (PIs). Establishing Florida Data Science for Social Good (FL-DSSG) Program. 2017. Funded by the Nonprofit Center of Northeast Florida. Total awarded amount: \$20,000. Website: <http://dssg.unf.edu/>

Swapnonneel Roy, Data Integrity and Energy Optimizations of Blockchains (in collaboration with UCF), Florida Center for Cybersecurity \$75,000.

Don Resio, Development of an integrated forecast demonstration system in the Caribbean region, National Hurricane Center (NOAA) and Florida International University/University of Miami, \$52,371.