

Teaching Portfolio

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Research outputs

Cleaning and coating procedures determine biological properties of gyroid porous titanium implants

Depboylu, F. N., Taşkonak, B., Korkusuz, P., Yasa, E., Ajiteru, O., Choi, K. Y., Park, C. H., Poyraz, Ö., Popa, A. A. & Korkusuz, F., 5. Jul 2024, (E-pub ahead of print) In: Emergent Materials.

Choosing between commercially pure titanium and Ti-6Al-4V gyroid structures for orthopedic applications: an analysis through Timoshenko beam theory, the Gibson-Ashby model and experimental methods

Depboylu, F. N., Yasa, E., Poyraz, Ö., Korkusuz, F. & Popa, A. A., Jun 2024, In: Materials Today Communications. 39, 10 p., 109256.

On the effect of small laser spot size on the mechanical behaviour of 316L stainless steel fabricated by L-PBF additive manufacturing

Yildiz, R. A., Popa, A.-A. & Malekan, M., Mar 2024, In: Materials Today Communications. 38, 108168.

Design and Manufacturing Considerations of a Constant-Force Mechanism for Low Force Regimes

Popa, A.-A., Duggen, L., Nowakowski, O. K. & Holmetoft Lyder, A., 2022, *Additive Manufacturing, Modeling Systems and 3D Prototyping*. Rossi, E. & Di Nicolantonio, M. (eds.). AHFE International, Vol. 34. p. 69-75

Printing Mechatronics

Popa, A.-A., 1. Feb 2021, Syddansk Universitet. Det Tekniske Fakultet.

A Conformal, Optimized 3D Printed Kneepad with Deformation Sensing

Popa, A. A., Drimus, A., Macdonald, E. W. & Duggen, L., 2021, In: IEEE Access. 9, p. 126873-126881

Towards Printing Mechatronics: 3D-printed conductive interfacing for digital signals

Popa, A.-A., Duggen, L. & Jouffroy, J., Jul 2020, *Proceedings of the 2020 IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM)*. p. 430-435 9159016

3D printed elastomeric lattices with embedded deformation sensing

Carradero Santiago, C., Randall-Posey, C., Popa, A. A., Duggen, L., Vuksanovich, B., Cortes, P. & MacDonald, E., 1. Jan 2020, In: IEEE Access. 8, p. 41394-41402 8998189.

3D Printed Hybrid Flexible Electronics with Direct Light Synthesis

Popa, A.-A., Zellers, B., Iversen, S., Kennedy, D., Cortes, P., Duggen, L., Jouffroy, J., Rogers, K., Conner, B. & MacDonald, E., 2020, *Advances in Additive Manufacturing, Modeling Systems and 3D Prototyping - Proceedings of the AHFE 2019 International Conference on Additive Manufacturing, Modeling Systems and 3D Prototyping: Proceedings of the AHFE 2019 International Conference on Human Factors and Systems Interaction*. Di Nicolantonio, M., Rossi, E. & Alexander, T. (eds.). Springer, p. 83-92 (Advances in Intelligent Systems and Computing, Vol. 975).

Corrections to "3D printed elastomeric lattices with embedded deformation sensing": 3D Printed Elastomeric Lattices with Embedded Deformation Sensing (IEEE Access (2020) 8 (41394-41402) DOI:10.1109/ACCESS.2020.2973664)

Carradero Santiago, C., Randall-Posey, C., Popa, A.-A., Duggen, L., Vuksanovich, B., Cortes, P. & MacDonald, E., 2020, In: IEEE Access. 8, p. 87184-87184

Towards Printing mechatronics: An optimized battery-powered 3D-printed coupling design

Popa, A. A., Duggen, L. & Jouffroy, J., 2019, *Proceedings of the 2019 IEEE/ASME International Conference on Advanced Intelligent Mechatronics, AIM 2019*. IEEE, p. 418-423 8868575

Towards Printing Mechatronics: Considerations for 3D-printed conductive coupling

Popa, A.-A., Mai, C., Duggen, L. & Jouffroy, J., Sept 2018, *Proceedings of the 2018 IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM)*. IEEE, p. 827-832

Employment

Institute of Mechanical and Electrical Engineering

1. Jul 2023 → 28. Feb 2025

Assistant Professor

SDU Mechatronics (CIM)

Sønderborg

1. Jul 2023 → 28. Feb 2025

Teaching Experience

Teaching at University has started for me in 2016, when, as a Research Assistant, I was offered the chance to co-supervise a semester project for mechatronics students at SDU Sønderborg. This was followed by the DES course (Mechanical Design) and MAC (Machine Components), along with different projects at both bachelor and master level. As part of the PhD I have undertaken, I have participated in a few teaching courses which gave great insight into modern teaching methods. I have always gone to great lengths to integrate this knowledge into my teaching.

I emphasize non-behaviouristic teaching, orbiting around the cognitive approach. By planning lectures centered around students, I have quickly learned that the knowledge transfer is not unidirectional, but rather multifaceted. I view students as teaching assistants and actively include them in course content preparation.

Formal Pedagogical Training

As part of the PhD I have undertaken, I have participated in a few teaching courses which gave great insight into modern teaching methods. I have always gone to great lengths to integrate this knowledge into my teaching. Between 2023 and 2024 I followed the Lecturer Training Programme at SDU.

Teaching Activities

Open Lab Nights and Company visits outside regular courses

Teaching Vision

My vision falls under the cognitive approach towards education. I find myself an enabler for students and not a knowledge bank, seeking to move the information acquisition more among students than between them and myself. To this end, I have struggled to create extensive rapid manufacturing facilities where students are allowed to experiment with their own designs in a hands-on learning-by-doing approach.

In a class of 100 students, I believe there always are to be found 20 teaching assistants and 20 research assistants. Practicing research-based teaching and tilting the didactic triangle towards the student, one quickly observes the great ambassadors of spreading knowledge they are. Lately I have been experimenting with student-generated course content, where I guide and curate the information about to be presented in class, with emphasis on online activities to facilitate active learning.

Development goals

I want to obtain as broad a perspective on the different roles a teacher can successfully take in the learning process. At the moment, I feel confident moderating student learning and their discussions, as well as curating information, activities and homework they might generate for their peers.

The next step is varying the magnitude of my roles, coupled with different levels of autonomy given to students in collaborative learning and their peer instruction. My belief is that there are several "sweet spots" where this type of learning can thrive, fostering course alignment.