



2062 NW Thorncroft Drive, Suite 1214
 Hillsboro, Oregon 97124
www.imagars.com
 Contact – Dr. Baldur Steingrimsson
baldur@imagars.com

Statement of Capabilities

D-U-N-S: 078654177 Cage Code: 6SY82

Imagars LLC presently provides engineering design software and services aimed at mechanical design, material design or manufacturing. Our patented Ecosystem is being used by mechanical engineering (ME) student design teams, in the US and Korea, both capstone, Formula and BAJA SAE teams.

The company is in the process of shifting its focus towards development of machine learning (ML) software, aimed at accelerating material design and optimizing associated manufacturing processes, and resulting from our research work. We have had the privilege to work with Prof. Peter K. Liaw from the University of Tennessee in Knoxville (UTK). Together, we have contributed a chapter to the textbook “Fundamental Studies in High-Entropy Materials”, to be published by Springer in 2021, presented at multiple conferences, and written journal papers. The godfathers of high-entropy alloys (HEAs), Prof. J.W. Yeh and Prof. B. Cantor also contributed chapters to the aforementioned textbook.



The Ecosystem for Design Assessment and Verification is a comprehensive design decision support system with the central purpose of uncovering design oversights early in the design process



“If a reliability problem is detected during engineering, the cost of the product goes up by a factor of 10. If the problem is caught in production phase, the cost of the product increases by a factor of 100 or more.”

R.S.M. Harry



Ecosystem for Design Assessment

1. Electronic journal of the complete design history.
2. Structured way of guiding designers through the design process and help eliminate design oversights.
3. Automatic & objective assessment of design activities.
4. Systematic capture of rationale supporting design decisions greatly helps with knowledge transfer.
5. Multiple features for facilitating communications.
6. Great facilities for project and part management.
7. Facilities for automatic generation of formatted project reports for inclusion in progress reports or presentations.
8. Requirement tracking and critical parameter management.

Material Design or Manufacturing

1. ML to Accelerate Design of Energetic Materials
 - Accurate assessments of physicochemical properties of energetic in-space materials from available databases.
2. ML to Accelerate Alloy Design
 - Expeditious search in large composition space of HEAs.
 - Intellectual property, textbook chapter, journal papers.
3. ML for AM Process Optimization

Patents

- US 9,923,949B2 (granted on March 20, 2018).
- US 10,853,536 (granted on December 1, 2020).

ML for Material Design and Manufacturing: Sample Clients



Ecosystem for Design Assessment and Verification: Sample Clients

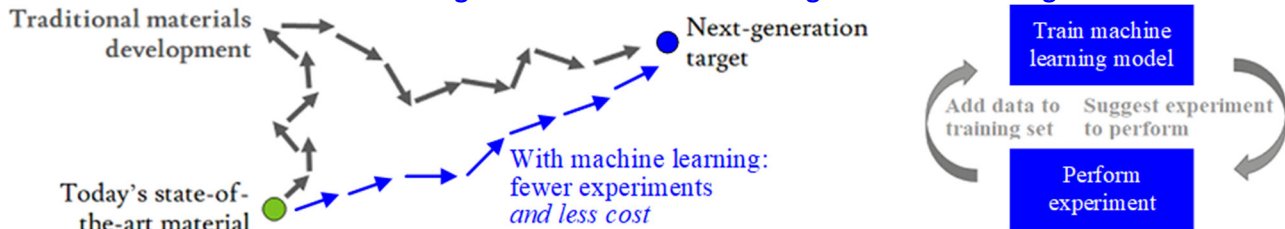


Past Performance

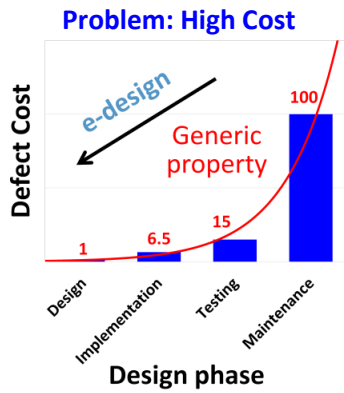
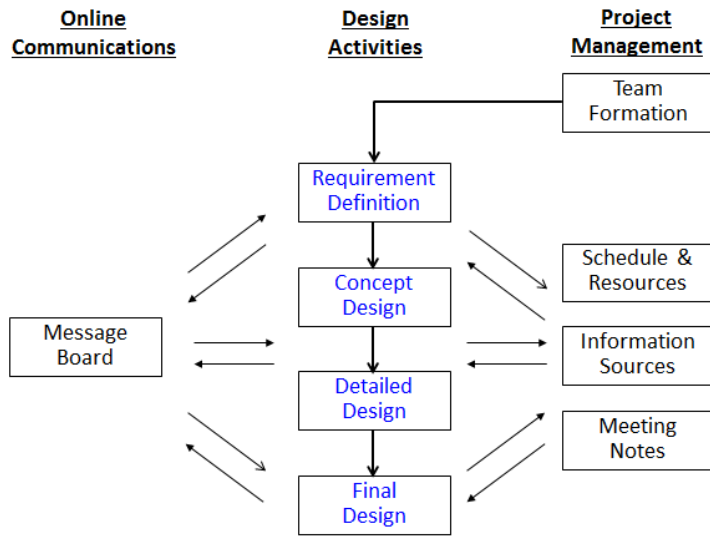
- Imagars LLC is presently in the process of executing, Small Business Technology Transfer Phase I project, sponsored by the US Air Force, titled *Use of Artificial Intelligence (Joint Optimization) to Accelerate Development of New Energetic Materials*.
- The company has successfully completed a National Science Foundation Small Business Innovative Research Phase I project, as well as a Phase II project, with a Phase IIa extension (IIP 1,447,395 and 1,632,408).

Further Illustrations

Machine Learning to Accelerate Material Design or Manufacturing



Ecosystem for Design Assessment and Verification



Solution: Design Decision Support



Uniqueness: High-Level Decision Support

