

# Danimae Janssen

danimaejanssen@gmail.com ♦ Minneapolis ♦ (218) 343-1901

linkedin.com/in/janssendanimae ♦ http://thenewcarag.com

## SKILLS SUMMARY

- |                   |                  |                   |                   |                         |
|-------------------|------------------|-------------------|-------------------|-------------------------|
| ▪ Java full stack | ▪ REST API       | ▪ IntelliJ IDEA / | ▪ Fluid mechanics | ▪ ANSYS                 |
| ▪ Spring MVC      | ▪ Java EL / JSTL | ▪ Netbeans        | ▪ Heat transfer   | ▪ Open FOAM             |
| ▪ Spring web apps | ▪ HTML / CSS     | ▪ Git / Atlassian | ▪ Multiphase flow | ▪ Design of experiments |
| ▪ AspectJ / AOP   | ▪ Agile          | ▪ C / C++         | ▪ FVM / CFD / FEA | ▪ Mathematical Modeling |
| ▪ Junit           | ▪ Tomcat         | ▪ Python          | ▪ Creo / ProE     | ▪ Numerical Analysis    |
| ▪ Javascript      | ▪ SQL / MySQL    | ▪ FORTRAN         | ▪ Solidworks      |                         |
| ▪ jQuery          | ▪ PHP            | ▪ MATLAB          | ▪ Linux           |                         |

## PROFESSIONAL EXPERIENCE

### Software Development: The Software Guild and University of Minnesota

#### The Software Guild

- Development of Java console applications using core Java language and tools including Junit testing, dependency injection, MVC principles, AGILE design, and robust code separation with exception handling.
- Integration of Spring framework for console applications for context dependency injection and AOP / AspectJ advice and logging.
- Full stack development using Spring MVC with EL / JSTL / Javascript to produce fully functional web applications running on Tomcat and featuring rich web-based front end interfaces.
- REST api development for Java web applications.
- SQL / MySQL integration for secure and stable back end data integrity and storage.
- Completion of 10 full Java applications spanning a wide range of skills as part of curriculum, along with two mastery projects and a capstone project (Available on github – See Mastery Project #1).
- Built a series of custom Java libraries to facilitate more efficient and robust code and adhere to the DRY principle across multiple applications (Available on github).
- Daily scrum and team based code oriented problem solving.

#### University of Minnesota

- Finite volume solver for compressible 2D flow. Developed in C++ and MATLAB from the ground up.
- Numerous 2D incompressible finite element / finite volume solvers written in FORTRAN.
- Finite volume solvers for phase change and moving boundary problems in FORTRAN.
- Control system models using MATLAB / Simulink.

### Research: University of Minnesota, Mechanical Engineering department

#### In collaboration with General Dynamics AIS/DARPA

- 3D printed 20+ conformal encapsulations for multiphase chip cooling in various layouts. Designed and ran experiments. Analyzed data and produced comprehensive reports.
- 4 published flow boiling studies utilizing mini-channel geometry for inter-chip cooling schemes with multiple fluids. Contributed to government research database.

#### Academic Research

- Study on heat transfer enhancement in electronics by boiling dilute emulsions, design, lab, analysis.
- Design of experimental methods for holography visualization of boiling droplets.
- Developed models and correlations for heat and mass transfer for frost growth and short channel boiling.
- Collected and analyzed data on frost growth for a study on improving refrigeration system efficiency.

### Teaching: Fluid Mechanics and Heat Transfer, University of Minnesota

- Effectively taught advanced physical concepts in fluids and heat transfer in and out of the classroom.
- Interacted with students to understand concerns and answer questions.
- Developed grading schemes for student work and tests.

### Leadership: Target Corporation

- Merchandising brand, visual/spatial problem solving, floor leadership, training.
- Team based workflow with careful time management.

2017

2011-  
2017

2011-  
2015

2013-  
2017

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## **EDUCATION**

### **The Software Guild**

Apprenticeship  
Java / Js / SQL  
2017

### **University Of Minnesota**

MS - Mechanical Engineering  
PhD - majority completed  
Fluid Mechanics / Heat Transfer  
Multiphase Flow  
2011 - 2017

### **Milwaukee School Of Eng.**

BS – Mechanical Engineering  
2009

## **PUBLICATIONS/PROCEEDINGS**

- Article: "Flow boiling of Dilute Emulsions", Int J. Heat/Mass Transfer, 2017
- Proceedings: "Electronics cooling with onboard conformal encapsulation", IEEE ITherm, 2016
- Article: "Flow boiling in an in-line set of short narrow gap channels", J. Heat Transfer; HT-13-1405
- Proceedings: "Flow Boiling in a Short Narrow Gap Channel", Proc. ASME, HT2013-17437
- Article: "Frost Layer Growth Based on High-Resolution Image Analysis", J. Thermal Sci. Eng., TSEA-15-1117
- Proceedings: "High Resolution Imaging of Frost Melting", Proc. ASME, HT2012-58061
- Proceedings: "Modeling Frost Layer Growth: A Physical Approach", Proc. ASME, HT2012-58054
- MS Thesis: "Experimental Strategies for Frost Analysis", University of Minnesota, November 2013