

# DANIEL ALAN COLLINS

## CONTACT

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## SKILLS

### SIMULATION

STAR-CCM+ (10 years), COMSOL,  
ANSYS/CFX/Fluent, TAItherm,  
GT-suite, OpenFOAM

### MODEL CONSTRUCTION

ANSA, CATIA, Fusion 360,  
SpaceClaim, ANSYS-WorkBench

### PROGRAMMING

Python, Java, Bash/Linux shell,  
PowerShell, MATLAB/Simulink

### OPERATING SYSTEMS

Linux/Unix, MacOS, MS Windows

### LANGUAGES

English (Native)  
German (Proficient verbal & written)

## EDUCATION

### M.ENG CHEMICAL ENGINEERING

Stevens Institute of Technology, 2009

### B.SC. CHEMICAL ENGINEERING

University of Pittsburgh, 2001

### CERTIFICATE GERMAN

### LANGUAGE

University of Pittsburgh, 2001

## HIGHLIGHTS

- Decade of 0D - 3D simulation such as STAR-CCM+, ANSYS, MATLAB, COMSOL
- Proficiently sculpt CAD to produce quality meshes
- Proficiently analyze giga loads of test data with Python
- Automating workflows with shell scripting (Bash/PowerShell), Java and Python
- Testing prototypes to qualifying certification of electronics and batteries

## EXPERIENCES

### SR THERMAL ANALYST — WISK (ALTEN): MOUNTAIN VIEW, CA

© 9/2023 – 7/2024. Contracted to develop battery in start-up's eVTOL.

- Crafted Python libraries to analyze hundreds of test cases, tabulate results against requirements, automate production of thousand slide decks. Presented the executive summary to chief engineers at Critical Design Review.
- Developed CFD model in STARCCM+ for predictive modeling of battery module with equivalent circuit. Compared the model against test using my Python codes.

### SR THERMAL ENGINEER — ENERVENUE: FREMONT CA

© 10/2021 – 7/2023. Start-up produces battery energy storage for power grid.

- Generated thermal maps in Python to measure effect of louvers, air shrouds, etc. The algorithms and visual outputs of plots were adopted into dashboards.
- Devised CHT/CFD models containing hundreds of battery cells to study and predict performance from various proposed thermal solutions.
- Validated power electronics, BMS control systems, battery cells and modules per UL 1973, 1998, 991; erected coffin sized conditioning chamber and other rigs.

### TEST ENGINEER — MICROSOFT (ACTALENT): MOUNTAIN VIEW

© 11/2020 – 6/2021. Contracted by Actalent Service in Mountain View, CA

- Conducted hardware testing of Microsoft's *Mixed Reality* device *IVAS*.
- Deployed Thermal Test Station at factory EOL (end of line). Reported issues found in the Test-Framework and verified resolution.

### THERMAL CFD ENGINEER — ZOOX: FOSTER CITY, CA

© 10/2019 – 4/2020. Start-up develops autonomous vehicle (startup).

- Reconstructed Vehicle Aero-Thermal model in STARCCM+. Presented CFD results to reveal impacts from grille and under-hood systems.
- CHT model and FEA-mesh based thermal models of on-board computer.

### CFD ENGINEER — SF MOTORS (dba SERES): SANTA CLARA, CA

© 5/2017 – 7/2019. Start-up develops battery electric vehicle (startup).

- Developed novel CHT/CFD method to accurately predict heat through the Battery Module and validated by test rig with 40 thermocouples.
- CFD models provided insight how to balance coolant flow in the battery pack.
- Served as interim Product Engineer for Vehicle Thermal Management (VTM) by initiating system attributes and engaging with suppliers.

© Start-up company © Contractual staffing © Engineering-services © Other

# DANIEL ALAN COLLINS

## ACTIVITIES

- \* Team leader for Agape Silicon Valley, a non-profit service organization
- \* Softball, volleyball, cycling, pickleball

## LOCALITY

### CURRENT RESIDENCE:

San Jose, CA  
Clawson, MI

### PREFERENCES:

CA, MI, PA, NJ, NY,  
REMOTE, OTHER

## PORTFOLIO

*Illustrative examples of projects and skills in action*

## THERMAL CFD ENGINEER — THERMOANALYTICS: NOVI, MI

- ① 2015 – 2016. **Consults** and distributes heat-transfer simulation.
  - Predicted temperatures surrounding car 12V battery under hot cases to assess the sensitivity and effectiveness of client's designs.
  - For pre-sales, demonstrated to customers the capability of CoTherm, company's novel tool to couple TAItherm with other simulation programs ("co-sim").
  - Supported customer service, wrote user-guides, recorded training videos.

## CFD ENGINEER — DETROIT ENGINEERED PRODUCTS: TROY, MI

- ① 2013 – 2014. **Consulted** at Fiat-Chrysler and later back-office.
  - Morphed manifolds to achieve balanced air flow for engine performance.
  - Other projects: back-pressure optimization in diesel exhaust system; tuned O<sub>2</sub> sensor location; predicted impact of back-pressure on engine performance.

## CFD ENGINEER — RHEINMETALL AUTOMOTIVE: AUBURN HILLS, MI

- Ⓢ 1/2011 – 5/2013. **Pierburg group** supplies emission mitigating systems.
  - Predicted temperatures in EGR modules with comprehensive conjugate heat transfer CFD model over three design stages, now produced in GM Duramax.
  - Computed pressure loss in EGR-valve, later validated by prototype samples, and generated valve-lift curves for End-of-Line qualification.

## TEST ENGINEER — MERCEDES-BENZ (ACTALENT): REDFORD MI

- Ⓢ 2010 – 2010. **Contracted by Actalent Services** at Mercedes Benz North America
  - Reconstructed durability test of shaft in MATLAB, producing equivalent stresses of 100hours for compressed time of 60min.
  - Supported many test campaigns for thermal endurance and cycling.

## VALIDATION ENGINEER (CONTRACT)

- Ⓢ Contracted at Wyeth Pharmaceuticals, Cherry Hill, NJ
  - Executed validation per GMP and FDA standards, particularly Cleaning Process done between batches of products. Authored the protocols and test results.

## GRADUATE ASSISTANT

- Ⓢ Stevens Institute of Technology, Hoboken, NJ
  - **Research:** Developed FEA model to study how pulsatile blood flow in Carotid Artery changed with stiffness of the arterial wall as predictor for stroke.
  - **Teaching Assistant:** Initiated and instructed new curriculum for biomedical engineering laboratories based in system modeling and FEA.

Ⓢ Start-up company Ⓢ Contractual staffing ① Engineering-services Ⓢ Other