Ashwin Siddarth

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EDUCATION

University of Texas Arlington, TX **GPA: 3.5**
M.S. Mechanical engineering, Expected Dec 2015

- Advisor: Dr. Dereje Agonafer
- Thesis : Experimental study on effects of segregated cooling system design on thermal performance of web servers in air cooled data centers

Global Academy of Technology, **KA** **GPA: 3.5**
B.E. Mechanical Engineering, May 2013

PROFESSIONAL EXPERIENCE

Project Intern, Design Department, Fall 2012
Bharat Fritz Werner Ltd, Bangalore, KA

- Collaborative optimization project, achieved an 11% weight reduction of a CNC machine component

RESEARCH EXPERIENCE

Research Assistant, NSF I/UCRC Center in Energy Efficient Systems, 2014-present
University of Texas Arlington, Arlington, TX

Assessed web servers for the effects of raising inlet temperatures on thermal manageability and energy efficiency when operating in quiescent laboratory conditions in a research project, guided and funded by Facebook. Inc., CA, USA

- Experimental redesign to nullify the impact of pressure differential on server volumetric flow rates
- Estimated the tradeoff between static power and fan power consumption in server level cooling
- Parametric study on server performance and reliability when servers operated at 25C inlet temperature

Conducted Accelerated temperature stressing of network cables to assess degradation in mineral oil immersion cooling

- Design of experiments and preliminary investigation carried out to establish cycling profiles and ramp rates
- Estimated the reduction in size, stiffness and strength of cable samples upon degradation in mineral oil

Participated in National Science Foundation - Industry & University Cooperative Research (I/UCRC) Team

- Presented various data center relevant topics to industry mentors including direct/indirect evaporative cooling, cooling pads, mineral oil immersion cooling and air cooling

Project coordinator for design and setup of a 1250 ft^2 data center test facility

- Computational research and experimental testing enabling operational data center innovations

OUTREACH & LEADERSHIP ACTIVITIES

Upward Bound Math & Science Center, Summer 2015

- Mentored a high school student in participating in active research wherein the participant conducted experiments in characterizing the performance of evaporative cooling pads

Veterans Research Supplement, National Science Foundation, Summer & Fall 2015

- Mentoring a veteran undergrad student in being part of an active NSF grant with research focusing on data center energy efficiency

Honors College Projects, Fall 2015

- Mentoring two undergrad students in performing experimental and computational studies on characterizing heat sinks and server systems by temperature, flow rate measurements and thermodynamic analysis of energy transfer

HONORS/ACTIVITES

- Vice-President and Member of American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Student Branch at UT Arlington, Fall 2015
- Student Member , ASHRAE Fort Worth Chapter, 2014-Present
- 7x24 Exchange Lone Star Chapter, 2015
- Student Member, Center of Energy-Smart Electronics Systems (ES2), 2014-Present

PUBLICATIONS & WORKING PAPERS

Siddarth, A., Fernandes, J., Eiland, R., Agonafer, D., "Impact of Static Pressure Differential between Supply Air and Return Exhaust on Server Level Performance" IEEE SEMI-THERM 32nd Thermal Measurement and Management Symposium (Under peer-review)

Fernandes, J., Eiland, R., **Siddarth, A.**, Agonafer, D., Mulay, V., "Raising Server Inlet Temperature: Effect on Power Consumption and Reliability" Journal of Electronics Packaging (due for Facebook Inc. internal review)

Fernandes, J., Eiland, R., **Siddarth, A.,** Agonafer, D., Mulay, V., "Minimizing Server Power Consumption: Balancing Leakage Current and Cooling" Journal of Electronics Packaging (due for Facebook Inc. internal review)

Siddarth, A., Dodia, N., Vallejo, M., Agonafer, D., "Impact of Fan Placement Proximity and Directional Exhaust on Server Level Cooling in a Front-To-Back Server Rack" IEEE Intersociety Conference on Thermal and Thermomechanical Phenomena in Electronic Systems (In progress)

Siddarth, A., Guhe, A., Dodia, N., Vallejo, M., Agonafer, D., "Modulating Airflow Provisioning in a Modular Data Center Operating in Various Economizer modes" IEEE Intersociety Conference on Thermal and Thermomechanical Phenomena in Electronic Systems (In progress)

CONFERENCE PRESENTATIONS

"Experimental and Numerical Analysis for Dynamic Airflow Provisioning at the Rack." Presented at IMAPS ATW Thermal Management, Los Gatos, CA, September 2015.
(Won Best Student Abstract Award and Stipend)

POSTER PRESENTATIONS

"Degradation of Cables in Mineral Oil Immersion Cooling Systems." Presented at NSF I/UCRC Industry Advisory Board Meeting, Steel ORCA, Princeton, NJ, April 2015.

"Testing Performance of Various Cooling Techniques Employed In Data Centers." Presented at 7x24 Exchange Spring Conference, Orlando, FL, June 2015.