From Iron Towers to Ivory Towers: Transition to Inspire and be Inspired

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Introduction

University of Florida
• Asst. Prof. of Mech. & Aero. Eng.

Previously at NASA
• NASA Civil Servant from 2009 - 2016
• Research Aerospace Engineer

Education
• Ph.D. (NASA Grant)
  Aerospace Engineering, Penn State
• M.S. (NREL Grant)
  Aerospace Engineering, Penn State
• B.S., Mechanical Engineering,
  Michigan State University

Dr. S. A. E. Miller at the UF
Special Collections
Grand Reading Room
I was asked to focus on

“What have I contributed to society as an engineer?”

and told

“It should focus on your engineering career”

My career and what I am contributing to society are two-fold…
Life at NASA

Many interesting problems all involving fluid dynamics, turbulence, and acoustics

SLS Scale Launches

Nozzle and Jet Research

Theoretical, Numerical, and Experiment Investigations of Flows

All well and good, but it’s easy to drift through life without reflecting on what this means...
Upon walking across the Caltech campus later wrote...

“And I realized, as I finally got to my office, that this is where [the university] I've got to be. Where people from all different fields of science would tell me stuff, and it was all exciting. It was exactly what I wanted, really.” Leighton, R. and Feynman, R., “Surely You're Joking, Mr. Feynman!,” W. W. Norton, 1985.

Prof. Richard P. Feynman, Ph.D. 1965 Nobel Prize in Physics
A transition to university to inspire myself and others... colleagues, the public, and most of all students
Life at University of Florida

February 2017  UF HWCOE MAE EWeek, Asst. Prof. Steven A. E. Miller, Ph.D., saem@ufl.edu
In reality, my **career** as a professor is just starting!

My **life career** goal is to **understand turbulence physically and quantify it mathematically**

Represents last great challenge in classical physics

“I am an old man now, and when I die and go to heaven there are two matters on which I hope for enlightenment. One is quantum electrodynamics, and the other is the **turbulent motion of fluids**. And about the former I am rather optimistic.” **1932 address to the British Association for the Advancement of Science**

Difficult to work on these tremendous problems unless you’re at a great university like UF

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Sir Horace Lamb, FRS

*Hydrodynamics and Dynamical Theory of Sound*
Great Theoreticians Inspire

Responsible for breakthrough analytical theory in turbulence

“Dream for a second and just do it”
A N. Kolmogorov

A person of true genius is rarely accessible...

Your professors are!

Perhaps my contribution at UF is to help inspire and educate the future generation of engineers and help you succeed

Academician Andrey N. Kolmogorov
Greatest Russian Mathematician and Fluid Dynamists

My Message

You have one life to live

Find what inspires you and embrace it

Illustration of Turbulence by Leonardo da Vinci
“My dear, here we must run as fast as we can, just to stay in place. And if you wish to go anywhere you must run twice as fast as that.”

*Through the Looking Glass (and what Alice found there), Lewis Carroll (Rev. Charles Dodgson)*