



VILLANOVA CENTER FOR
ANALYTICS OF
DYNAMIC SYSTEMS



Some thoughts on PHM in Education

C. 'Nat' Nataraj

Director, Villanova Center for Analytics of Dynamic Systems
Moritz Endowed Chair Professor in Engineered Systems

E-mail: nataraj@villanova.edu

<http://vcads.org>

PHM Annual Conference 2018

Challenges

- PHM topics are highly interdisciplinary: electrical, mechanical, structural, environmental, computer, industrial, ...
- Earlier panels → Most PHM knowledge is on-the-job training, and is not learnt in academia
- Systems knowledge is lacking in academia (largely)
- In general, faculty expertise?
- Too many programs already

Some existing courses at Villanova

- Machine learning/AI: CS, Statistics, Engineering
- Adaptive, Robust control: Engineering
- Modeling & Simulation: ME (now a certificate program → degree)
 - Completely DL
 - Dynamics, Thermofluids, Mechanics & Materials
 - Future: CoE
- Fracture and failure: ME
- Reliability: ECE
- Data Science courses: Business, CS
- Diagnostics – part of Vibration, Rotor Dynamics, Thermal design

Educational Models

- Undergraduate electives
- Graduate
 - Individual courses
 - Certificate programs
 - Degree
- Continuing education
 - Workshops
 - Distance Learning modules
- Package existing courses?
- Guest lectures
- Combine across universities/labs/industries



Thanks to my students and postdocs!

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