Bob's Biosketch

BobFest

"Career with Cheer:
Robert *Wit*mead's Legacy of Control and Selflessness"

UC San Diego, June 8, 2024

https://ojcsys.github.io/BobFest

The Facts

Born in Sydney, Australia, on April 10, **1954**

1976: BSc (Hons I) in Applied Mathematics, University of Sydney, Australia

"A survey of past work and current trends in problems concerning stability in a sector for deterministic control systems: the problems of Lur'e and Aizerman"

1977: ME in Electrical Engineering, University of Newcastle, Australia

"Matrix transfer function description of linear systems"

1980: PhD in Electrical Engineering, University of Newcastle, Australia

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Bob considers himself a **"control/circuit theorist"**

The Facts

Distinguished Professor of Mechanical and Aerospace Engineering at UC San Diego

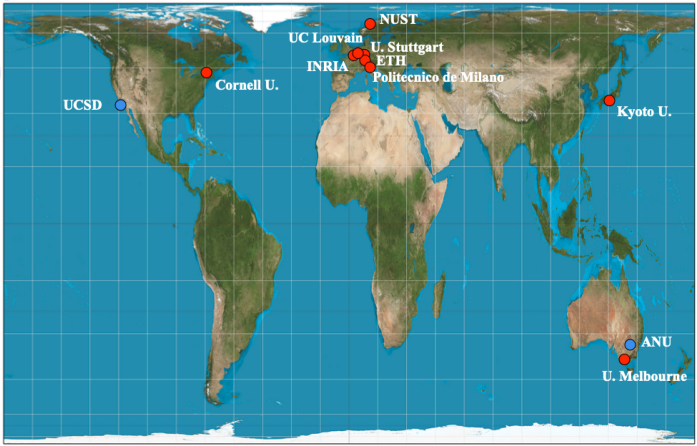
The Facts

Previous stints:

- {**Professor, Senior Fellow, Fellow**} of Systems Engineering, Australian National University
- **Executive Director** of "CRASys: Cooperative Research Centre for Robust and Adaptive Systems"

The Facts

Myriad of visiting appointments



Awards and Distinctions Too Many to Summarize

Career Distinctions

- Fellow: IFAC, IEEE, Australian Academy of Technological Sciences & Engineering
- IEEE Control Systems Society Transition to Practice Award; Distinguished Lecturer
- ASME Rufus Oldenburger Medal
- Inaugural Cymer Endowed Chair for High Performance Dynamical Systems Modeling and Control, UC San Diego
- Australian Telecommunications and Electronics Research Board Medal

Paper Awards

- Finalist in the triennial IFAC Applications Prize Paper Award for the paper A.G. Partanen and R.R. Bitmead, *"Excitation versus control issues in closed loop identification for a sugar cane crushing mill"*, IFAC World Congress
- IFAC citation for paper I.M.Y. Mareels and R.R. Bitmead, *"Nonlinear dynamics in adaptive control: periodic and chaotic stabilization. Part II: analysis"*, Automatica, vol. 24, No. 4, July 1988, pp. 485-497

Service to the Professional Community

- IEEE Control Systems Society Distinguished Member Award
- IFAC Outstanding Service Award

Teaching and **Mentoring**

- Vice-Chancellor's Award for Excellence in Teaching, ANU
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So What Have We Learned About Bob?

He likes red hats

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He likes red hats, red shirts

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He likes red hats, red shirts, and other red things too

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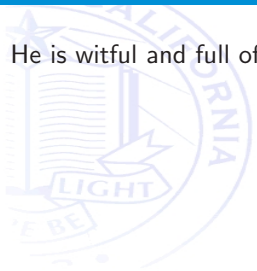

He is witful and full of resources

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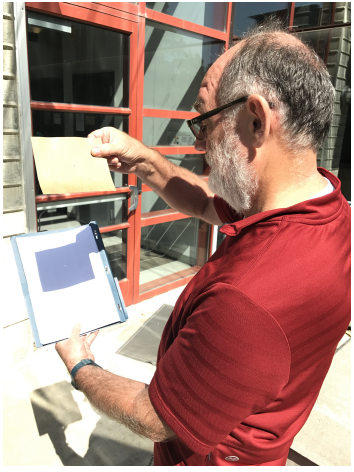

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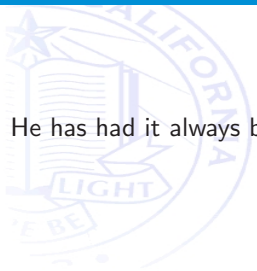

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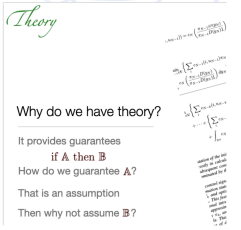
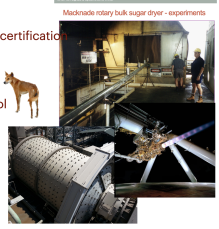


Bob's Four Slides of Fame - 10

Lots of industrial applications

- ✱ Joint Strike Fighter Engine Controller certification
  - ✳ Pratt & Whitney, Navy, SC Solutions
  - ✳ Certification rules adopted by FAA
  - ✳ Vinnicombe's ν-gap metric, dingoes
- ✱ Deep Ultraviolet Excimer Laser Control
  - ✳ Cymer fielded upgrade worldwide
  - ✳ Event-triggered filtering
- ✱ Extreme Ultraviolet CO_2 Laser Control
  - ✳ ASML, system identification
- ✱ Cellphone E-911 Localization
  - ✳ Polaris Wireless WLS product
  - ✳ Geographical state estimation



Scientific reasoning - Bob's mean streak

- deduction
  - from the general to the specific
    - assumptions then conclusions
      - models falsifiable by experimental data
        - deliberative experiment design
- induction
  - from the specific to the general
    - fitting models to data
      - then what?

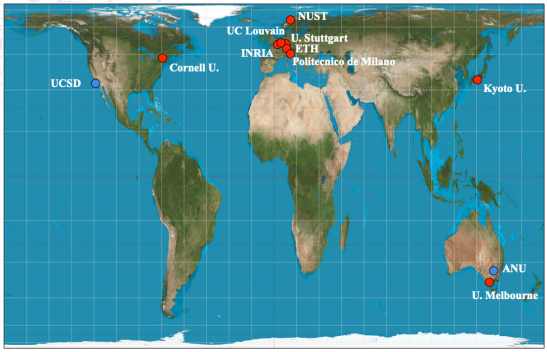
If you do not do both, you are not doing science

Hint: one is much easier than the other

BD/ML/AI/Ho-Hum

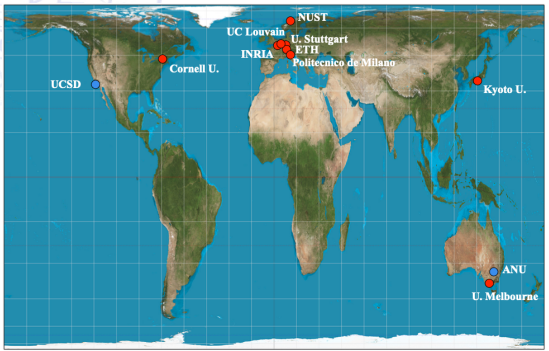
So What Have We Learned About Bob?

He likes to travel the world, preferably to Europe



So What Have We Learned About Bob?

He likes to travel the world, preferably to Europe... bringing a unique blend of cultures



But more importantly, what have we learned **from** Bob?