• National math institute at UCLA, sponsored by NSF and started in 2000.
• IPAM’s mission is to promote interactions between math and other disciplines
• Carried out through events ranging from 1 day to 3 months with over 1200 participants each year
• The next two days: math and finance…

...and...
Connecting the Past with the Future of Financial Mathematics
Thematic Areas - 2nd WFM

The Here-to-Stay Roles of Big Data and Machine Learning

Predictions for FinTech & Asset Management

Predictions for Portfolios and the Role of Robo Advisors

-- Luncheon Peer-to-Peer Topics --

The Outlook for Quantitative Investing

New Directions in Financial Mathematics – Risk/Algorithmic Trading/ ETFs and Beyond

Final Q&A

-- Reception --
Women in Financial Mathematics

1st National Conference
May 14, 2015

Thematic Areas – 1st WFM

Quantitative Trading

Predictions for FinTech & Asset Management

Portfolio Allocation

Mathematical Finance

Communication Tips

-- Luncheon Peer-to-Peer Topics --

Data Analytics

New Directions in Financial Mathematics – FinTech, Cyber, ETFs, Systemic Risk and Beyond

Final Q&A

-- Reception --
Panelist Perspectives*

- Developed versus Emerging Markets
- Advisor Practitioner Academic
- Investor PE, HF, Index, ETF Robo Crowd Fin
- Payments Blockchain Cyber Financial Warfare
- Quant Risk, Algos Big Data Machine Learning
- Political & Legislative Demographics Crypto *“e”* Currencies
- Legal, Regulatory, Supervisory, Governance
- Established & New Players - FinTech

* Incomplete Listing
Questions About the Past, Present & Future:  **HOW?**

- How will finance embrace big data and machine learning?
- How will new techniques for structured and unstructured data impact finance?
- How should we think about the past 10 years of data?
- How will traditional players transform themselves and will they collaborate or compete with FinTech?
- How might disruptive players have an advantage?
- How will regulatory change and fee pressure impact development of robo advisors, algorithmic trading, ETFs?
- How fast will current techniques become outdated?
Questions About the Past, Present & Future: **WHAT?**

- What predictions do we have about the future of finance?
- What new quant techniques are the hottest trends?
- What new techniques offer the greatest job opportunities?
- What advantages do disruptive players have?
- What key risks and opportunities exist?
- What changes will be driven by which stakeholders – retail investors, institutional investors, borrowers, service providers, over-seers, others?
Questions About the Past, Present & Future: **WHERE?**

- Where will we see the greatest practitioner developments in financial mathematics?
  - Emerging or developed markets?
  - Traditional or new players?
  - Front/middle/back office?
- Where will the businesses of quant asset managers, active/passive asset managers, data scientists, algorithmic and machine learning experts, robo advisors & risk managers be in 2, 5 and 10 years?
- Where will crypto currencies and e currencies succeed (if anywhere)?
Questions About the Past, Present & Future: WHEN?

• When (if at all) will the intervention subside and will there be a game-changing impact?
• When (if at all) will passive dominate active investing?
• When (if at all) will demographics change retail v. institutional strategies and products?
• When will the greatest risks and opportunities appear?
• When (if at all) will robotics increase/decrease jobs in financial mathematics?
• When – and which stakeholders – will drive change?
Today’s Global Financial Landscape

- Extraordinary intervention, regulation, concentration and unintended/unforeseen consequences of the financial bailouts.
- Increasing nationalism, central banks less independent, unsustainable wealth distribution.
- Changing roles – Gold, Bitcoin/Crypto, Oil, SWF, FinTech, Traditional players, role of retail and institutional investors.
- Monetization of assets and liabilities varies by market.
- Cyber risk at the national, company, personal level
- Financial warfare an increasing threat.
- Defining the correct state space is difficult.
And So The New World
(a very partial listing)
## ROBO-ADVISORS & PERSONAL FINANCE
- bill guard
- moneyfarm
- robohood
- charlet schwarz
- wealthfront
- habito
- motif
- sigfig
- hedgeable
- vanguard
- scalable capital
- mint

## BLOCKCHAIN & BITCOIN
- ripple
- kraken
- coinbase
- bitstamp
- BTC e
- ethereumb
digital asset holdings
circle

## REGTECHS
- osis
- truonomi
- viclarity
- quarule
- identitymind
- complyadvantage
- invoxis
- silverfinch
- suade
- cube
- atom
- tandem
- ally
- starling bank
- monzo
- n26

## DIGITAL BANKS
- commcise
- corlytics
- encompass
- aqmetrics
- algorithmics research ab
- fidor bank
- tide
- simple

## PAYMENTS & REMITTANCES
- dwolla
- venmo
- paypal
- paydiant
- samsung pay
- visa checkout
- bitpesa
- worldremit
- stripe
- braintree
- klarna
- amex
- express checkout
- google pay
- shopkeep
- remitly
- transferwise
- square
- adyen
- apple pay
Signs the “model” may be changing

• The new shadow banking (e.g. Upstart, “liquid” alts, direct repo)
• The new trading systems (e.g. Big Data driven, new algos)
• The “new” securitization – Connecticut Avenue Securities (FNMA), Structured Agency Credit Risk (FHLMC)
• The “new” financial engineering (e.g. ETFs)
• The new crypto currencies (e.g. Bitcoin)
• The new banking ops (M-Pesa, Apple Pay, Alipay, Tencent, etc.)
• The new enterprise intelligence
• The new regulations (from higher capital to derivatives exchanges)
• The new opportunities from problems & related questions – bad behavior or bad economic systems or economic forces?
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Life-long Learning

The only bad questions are those not asked!