

# My experience with Marie Curie Fellowship

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# A bit about myself

- Background
  - Interdisciplinary studies: Mathematics+Telecommunications degrees
  - M.Sc. In Applied Mathematics
  - Ph.D. in Photonics (Quantum Info) at ICFO, Barcelona
  - In 2016 moving to MPQ to Prof. Dr. Ignacio Cirac's group
    - First postdoctoral position outside of Spain

## My proposal: Q-ANNTENNA

- Quantum Artificial Neural Networks with TENSor Network Algorithms
  - Overall plan: Combine the quantum information I learned during my Ph.D. with the tensor networks expertise from Cirac's group to the novel field of quantum machine learning



# Disclaimer

- Merely suggestions, not universal rules
  - Take what applies to your own proposal, using common sense!

## General ideas

- Writing a application is time-consuming and hard, especially at the earliest stages of your career. 1 month full-time dedication for MSC IF.
- BEFORE writing, organizing your thoughts
  - Try thinking like a reviewer
    - What would you like to know about an applicant that asks for money you are giving out?
    - What do they want to do? Why are they the best person to do it? Why the place is ideal to ensure success? How will they benefit from the investment? What timeline, challenges expected, contingency plans?



# General ideas

- Always keep in mind that the MSC fellowship is ALL ABOUT YOU!
  - It's a personal grant, to fund **your** idea, that only **you** can pull off with the skills that only **you** possess and the competences that only **you** can acquire at the host group(s)
  - This should be implicitly visible throughout all the application
  - Make sure it's clear that the project is your own idea
  - Preferably use «host group» instead of the name of the PI
- Make the formatting of your application like a consulting brochure
  - Attractive and well organized, for quick reference of essential information
  - Choose a visually nice font (e.g. Avenir or Calibri, NOT Times New Roman)!
- Reviewers will fall for pretty applications that make their life easier by not being tiresome blocks of condensed text and diagrams.



# General ideas

- Whenever you feel you are writing to fill up space, you probably are.
  - Reviewers always spot if you waste space, time and patience.
  - Include specific statements with details, facts, people's names

- MPQ and TUM offer me unique research atmospheres that foster interdisciplinary collaborations that enhance creation and innovation
- [...] my leadership experiences in several fields will aid me in directing an independent research group in the future

- In moving between condensed-matter focus at MPQ and Machine Learning focus at TUM, I will have an ideal environment for interdisciplinary research training.
- [...] my combined experiences will poise me to become an independent quantum data scientist, applying tensor network methods to quantum machine learning, giving me the opportunity to lead my own research group in the near future.



# Feedback avoids mistakes

- Do not be shy and ask for feedback!!!
  - Projects unit has lots of experience and will provide valuable advice
  - Ask people from different backgrounds to read your proposal
  - Referees won't be experts in your sub-sub-sub-sub-field.
    - The list of referees for 2014-2015 (general MSCA) is public, so take a look and you'll find someone you know, to get the idea.
  - People without superior studies should also read your proposal, be capable of understanding what are you going to do, and their reaction after reading it should be «This thing has to get funded»
- Contact with your supervisor is important, but their time is limited and valuable
  - #iterations is highly variable



# Ask for other people's proposals

- AND THEIR EVALUATION REPORTS!!
- You will learn the way referees react to different proposals
- Good to «recycle» ways of expressing things in English that sound great
  - Specially if you are not a native speaker
  - Buzzwords
  - Synonyms have subtle differences, find the exact word you need
- Do not mimic them blindly though. The structure of the proposal changes every year



# Specific sections

- Summary section B.1
  - This is the main ref. page used in the round-table discussion that assigns a final score to the project
- Excellence 2.1 (Quality, innovative, credibility...)
  - It should be obvious that the project is your idea
  - It's really bad if it sounds like a continuation of another project, specially things that you did during your previous position (PhD...)
  - Include specific disadvantages of current techniques that your new approach may solve
  - The skills you rely upon are well backed up in your CV
    - The skills you don't have, but need them, should be described here
      - Support structure at your institute, how you are going to acquire it...





# Some specific sections

- Excellence 2.2
  - It should sound like your background is rare, uniquely suited
- Excellence 2.4
  - MSC fellowship should be the «boost» and the «bridge» in your career
- Impact
  - Find a specific professional objective and state how this particular MSC fellowship is an essential stepping stone towards a future, successful career.
  - By helping you, the MC commission also helps Europe, economically and intellectually
  - Be original with the outreach
- Implementation: Exchanging «risk» for «challenge» implies less danger of failure



# Concluding remarks

- It's not about being «good», it's about being better (according to the 50/30/20 metric) than the rest
  - Impact and Implementation will make the difference
- Try to anticipate how the referees will react to what you are writing
- Every sentence should serve a definite purpose
- Mismatch: what you have in mind and what the paper actually says
- Don't send it the last day, you can upload multiple times
- Revisit your proposal after 3-4 days without touching it
- Do not just «add» your CV. Tailor it to what referees value
- Do not be modest, be honest

