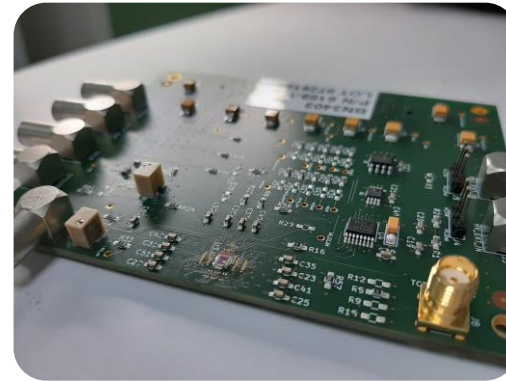
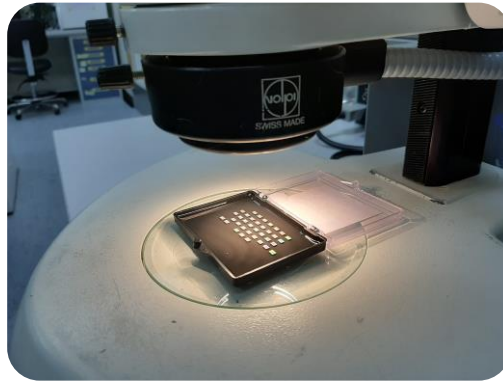
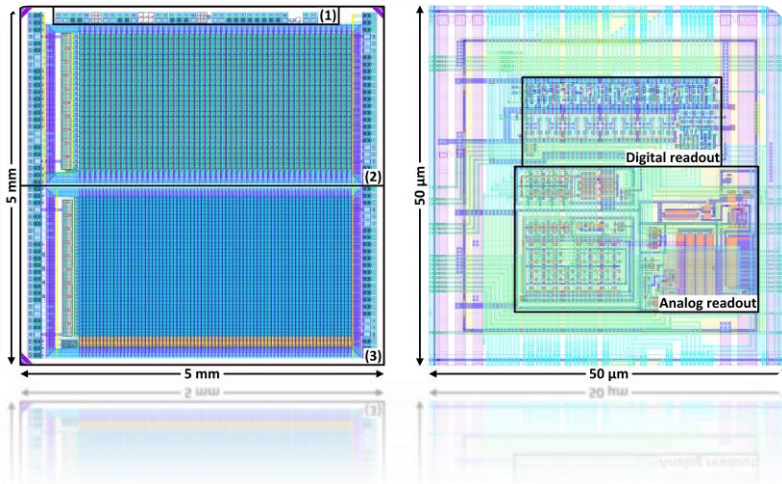


UKRI FLF



Dr Eva Vilella-Figueras
UKRI Research Fellow
University of Liverpool
vilella@hep.ph.liv.ac.uk

UKRI Future Leaders Fellowship


news.liverpool.ac.uk/2019/05/07/ukri-future-leaders-fellowships-success-for-liverpool/

Dr Eva Vilella

Electronic engineer **Dr Eva Vilella** works in the **Department of Physics**, developing advanced silicon sensors for the tracking of charged particles in physics experiments.

Under her Future Leaders Fellowship, she aims to achieve a step change improvement to the performance of these sensors through the development of Depleted Monolithic Active Pixel Sensors (DMAPS). Her devices will incorporate a highly performant detector system on a single chip, using industry standard and cost-effective processing techniques.

The expected improvements in position accuracy, timing resolution and radiation tolerance will benefit the most challenging future experiments in physics and provide major benefits in other fields like proton therapy for cancer treatment.



Feedback

Science and Technology Facilities Council @STFC_Matters

Congratulations to @LivUni electronic engineer & detector physicist @VilellaEva, named as @UKRI_News Future Leaders Fellow, working on improving the performance of advanced silicon sensors for the tracking of charged particles.

University of Liverpool Physics @livuniphysics · May 7, 2019

Congratulations to our very own Dr @VilellaEva who has been awarded a prestigious @UKRI_News Future Leaders Fellowship. We are all very proud of you! To find out more bit.ly/2H2knYU #ukriff



3:38 PM · May 8, 2019 · Twitter Web Client

UKRI Future Leaders Fellowship

What?

- Prestigious and exciting new fellowship scheme



UKRI Future Leaders Fellowship

What?

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When?

- Funding for up to seven years on a 4 + 3 basis



UKRI Future Leaders Fellowship

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£££?

- Up to £1.5M for the first four years
- Up to £0.6M for the final three years



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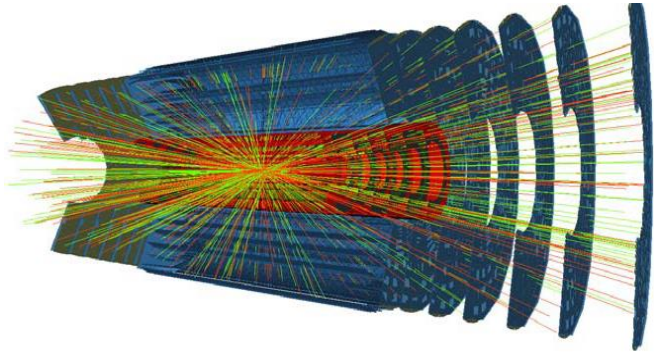
- To tackle ambitious and challenging research and innovation
- To develop their own careers and for all disciplines and sectors

!!!

- Provides a route to an open-ended contract within academia

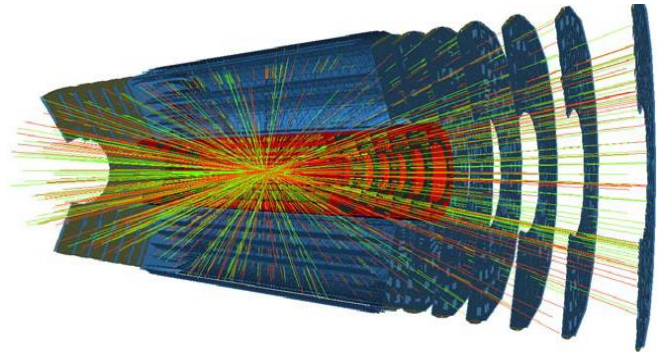


My fellowship – R&D goals & areas of expertise



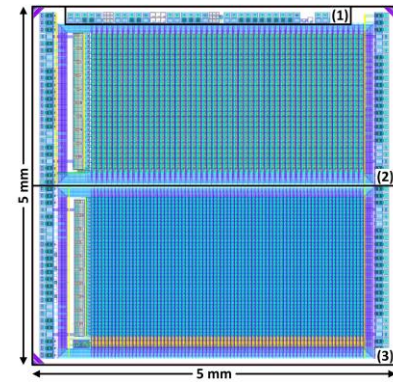
Future particle tracking applications

My fellowship – R&D goals & areas of expertise

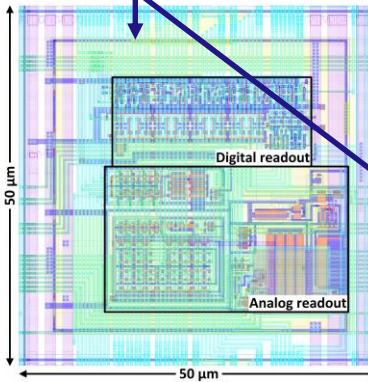


Future particle tracking applications

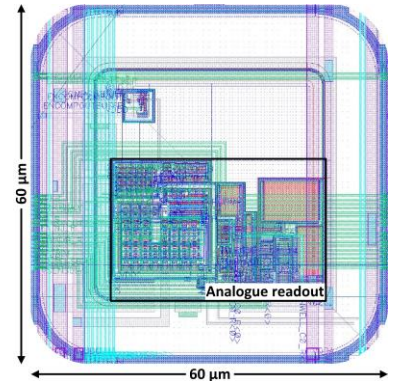
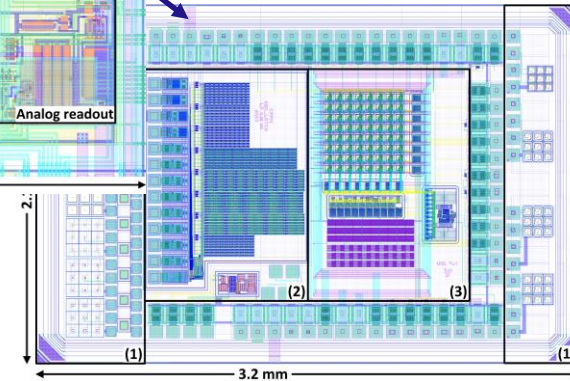
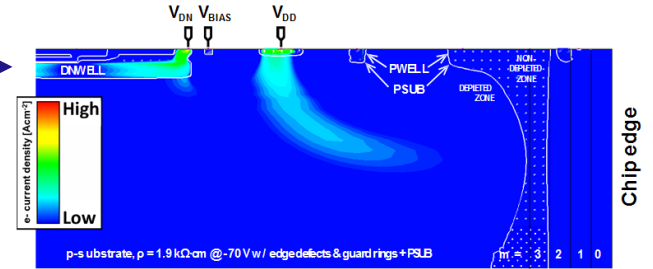
Sensor design:



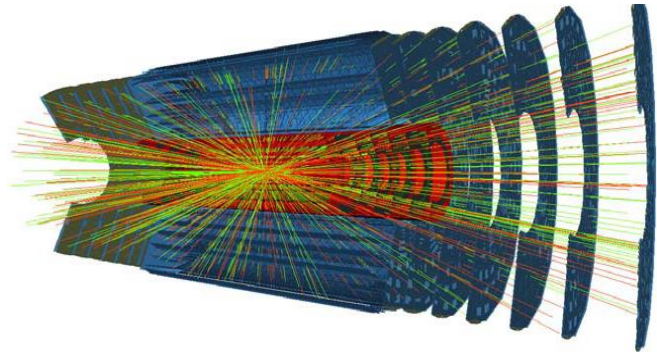
Chip design



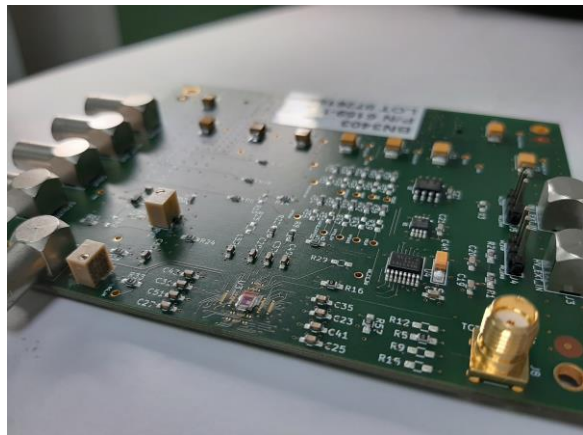
TCAD →



My fellowship – R&D goals & areas of expertise

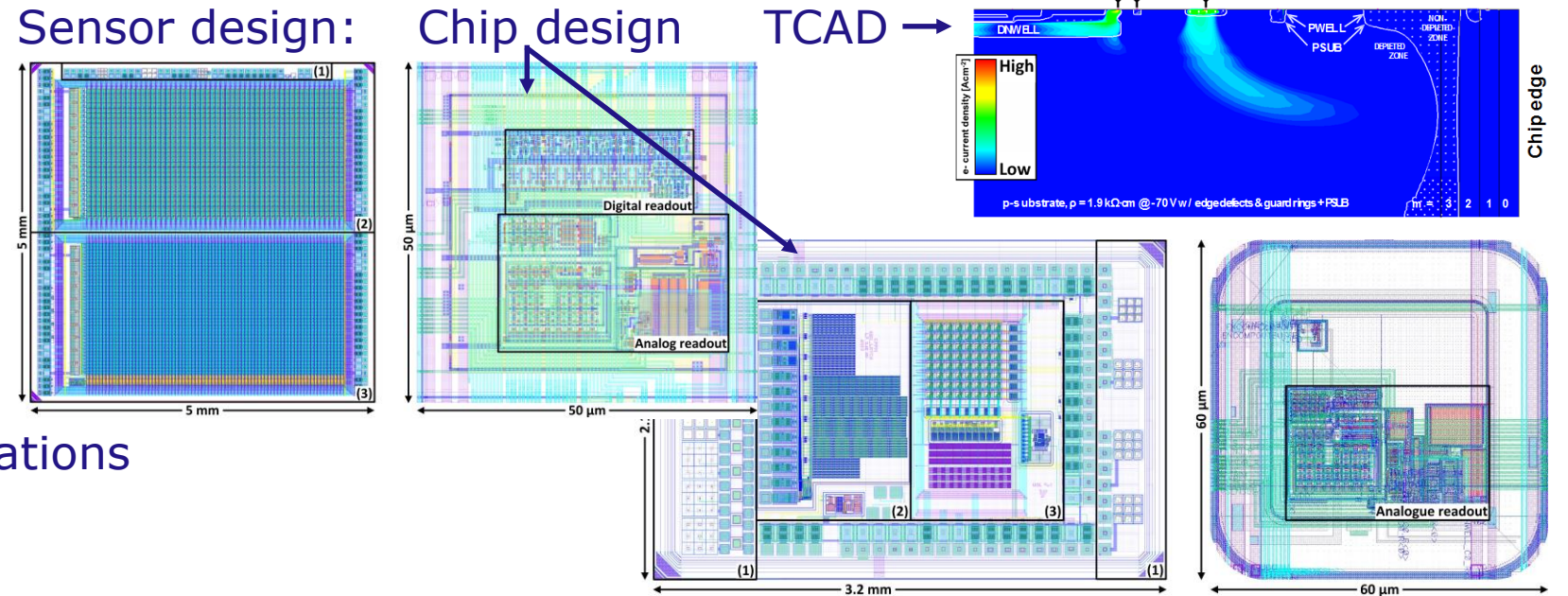


Future particle tracking applications

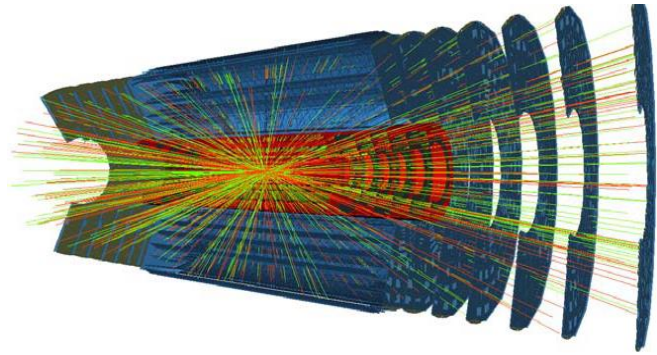


DAQ development

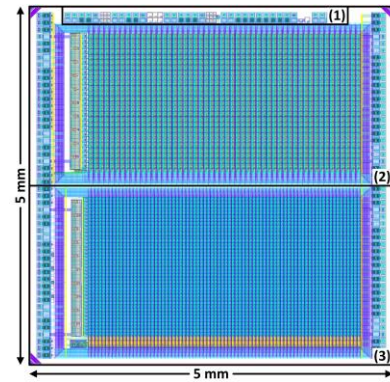
E. Vilella-Figueras – UKRI FLF



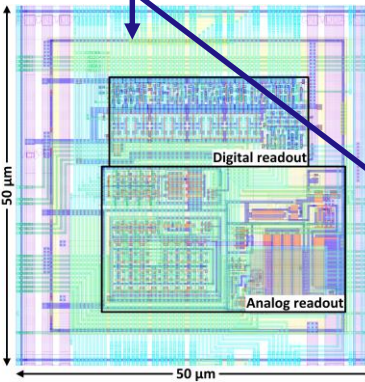
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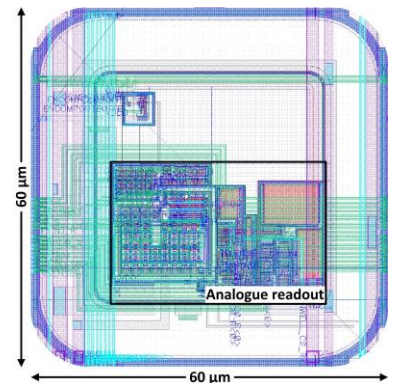
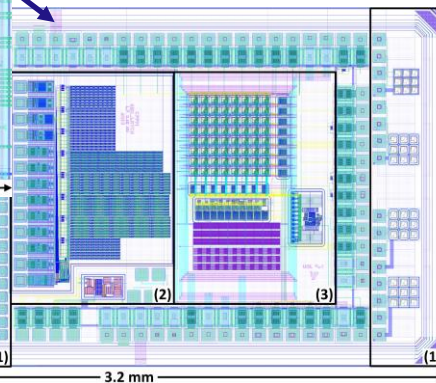
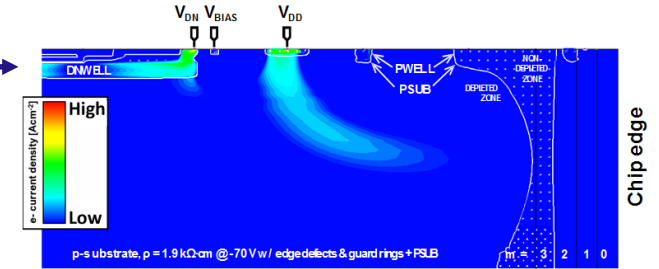
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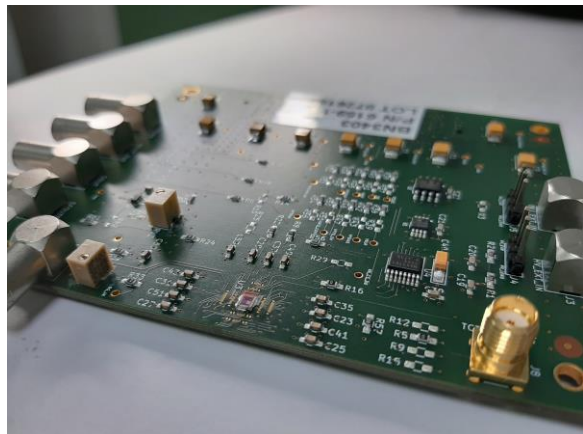
Chip design



TCAD →



Future particle tracking applications

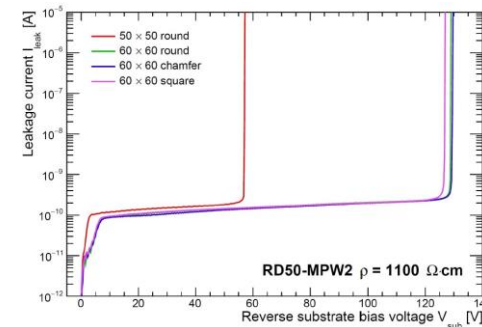


DAQ development

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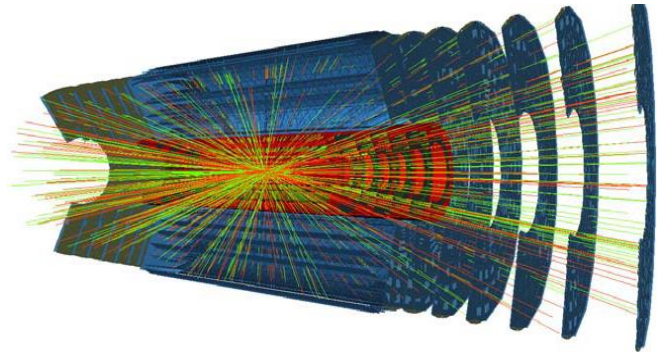


Experimental evaluation

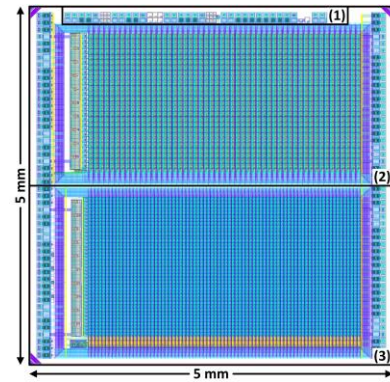


AVA Careers Workshop – 27 October 2020

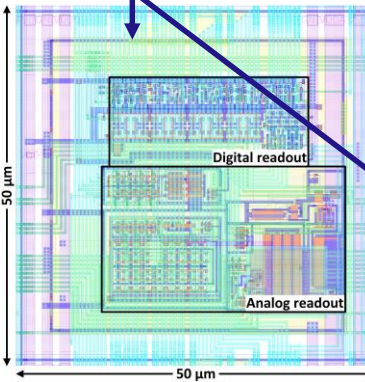
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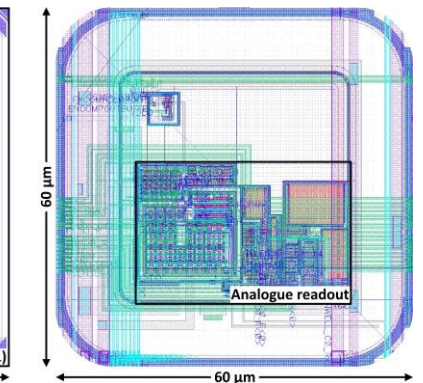
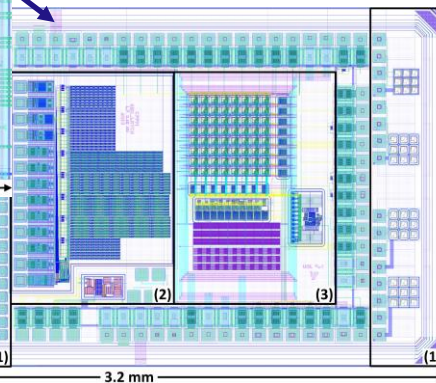
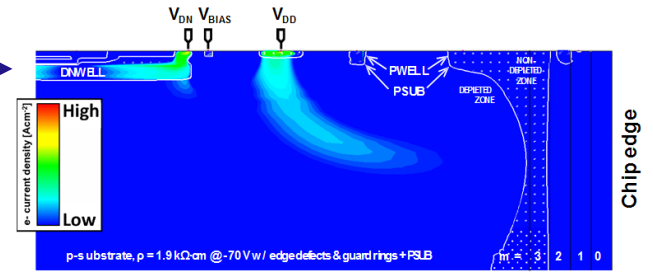
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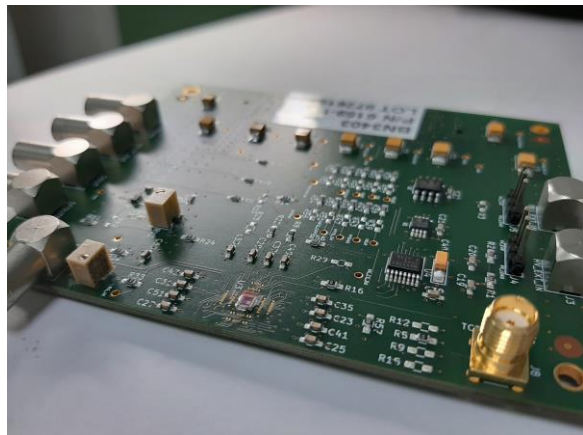
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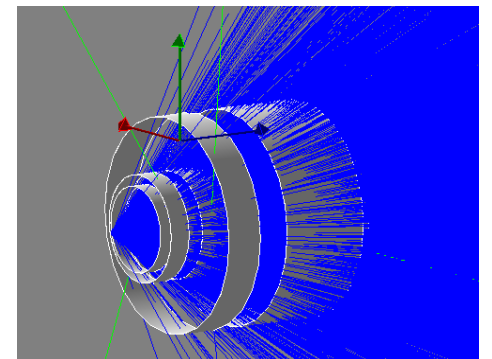
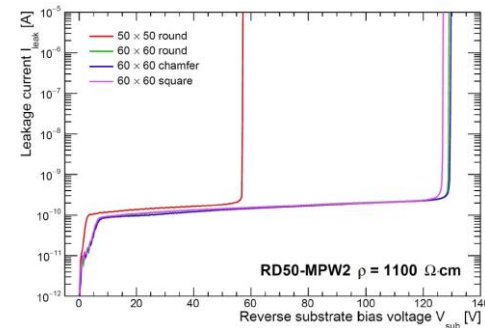
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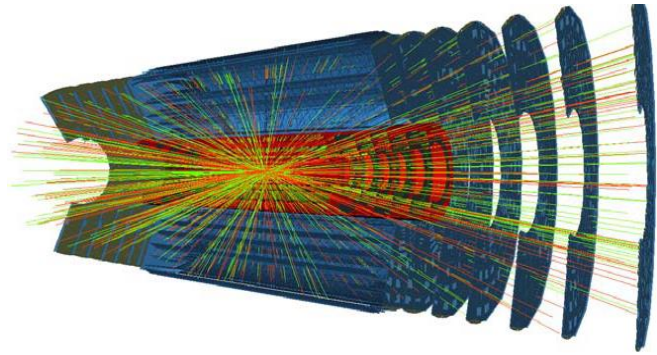


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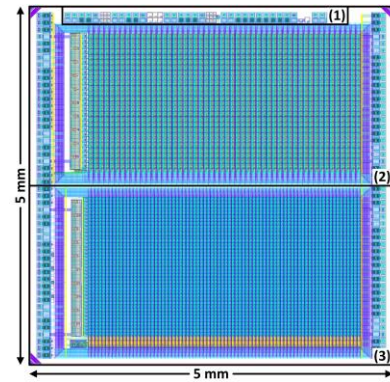


Geant4 simulations

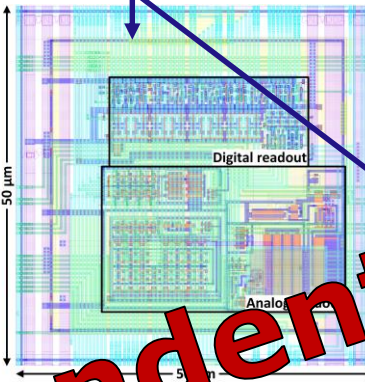
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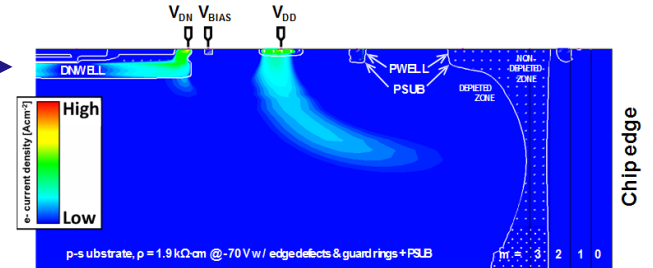
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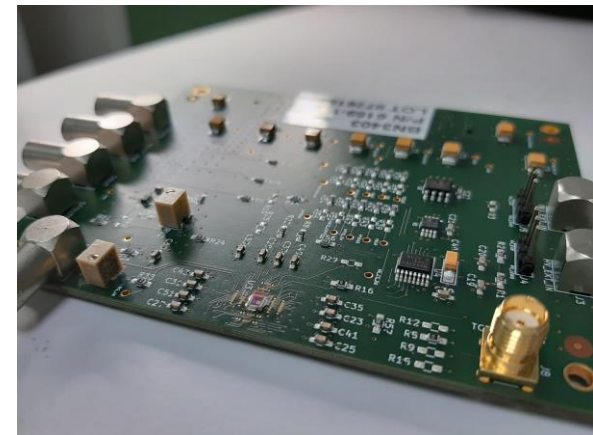
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TCAD →



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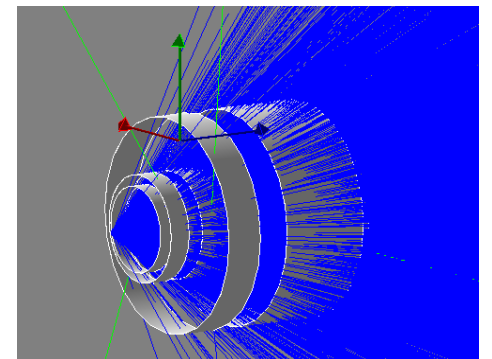
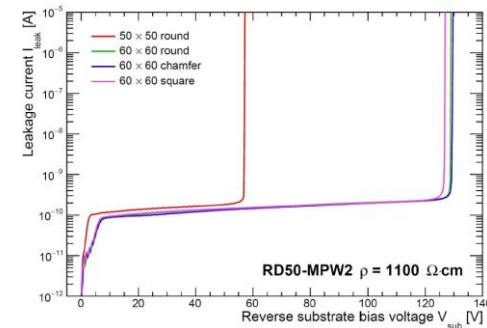


DAQ development
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Experimental evaluation

Independent R&D



Geant4 simulations

My fellowship – Team

- Myself
 - 2 postdocs
 - 1 electronic engineer
 - 5 PhD students
 - Occasional undergraduate students & summer students
- } Fellowship funded



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**Formed my
R&D team**

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- 2016** ○ First PhD students – Contributed to R&D programme
Known internationally – Member of international collaborations
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Europractice representative for Uni Liverpool
R&D representative for Particle Physics cluster
- 2020** ○ LHCb MightyPix co-coordinator + LHCb-UK MightyPix sub-WP lead
Early Career Researchers representative for Department of Physics
Panel Member for UK funding agency for physics



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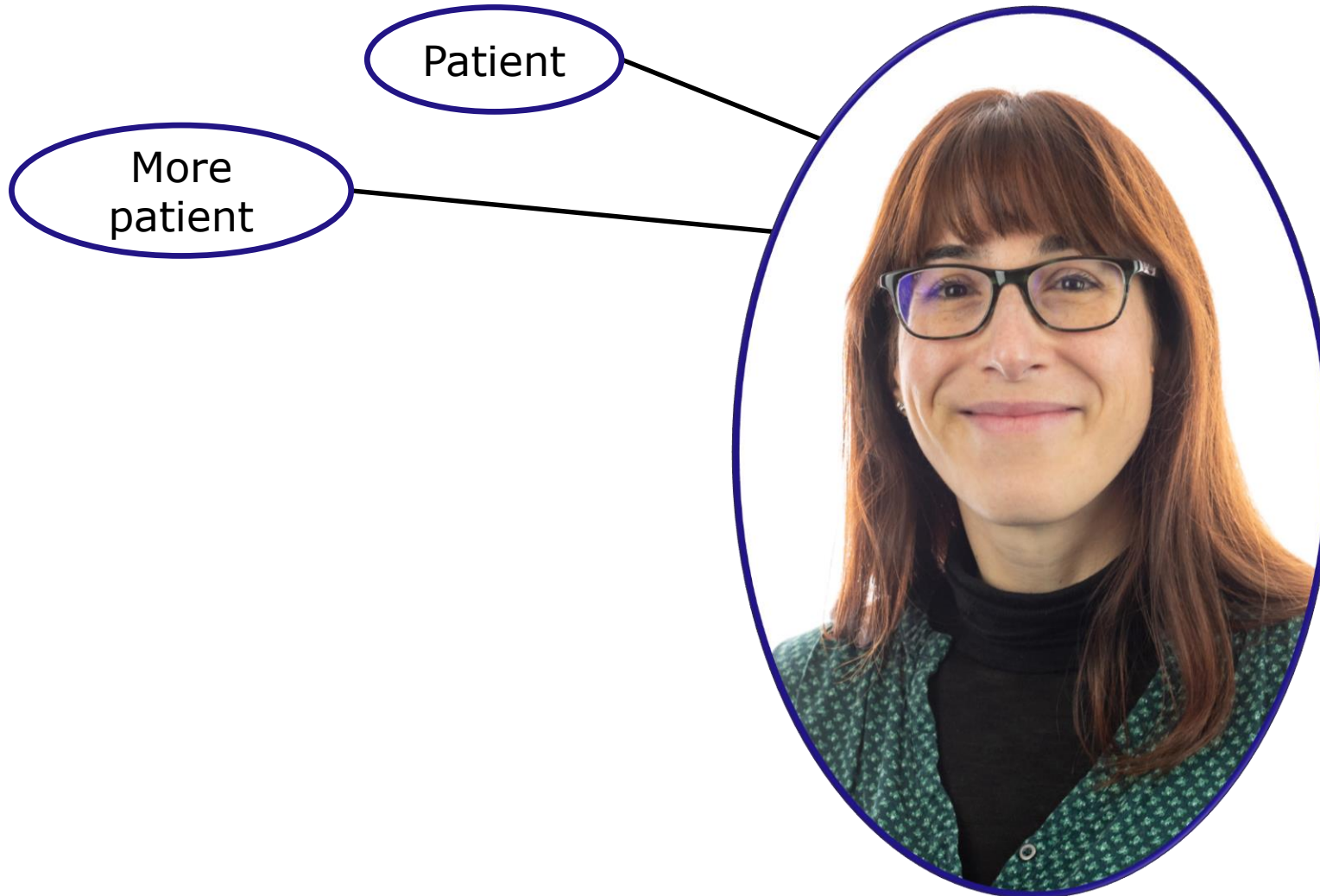


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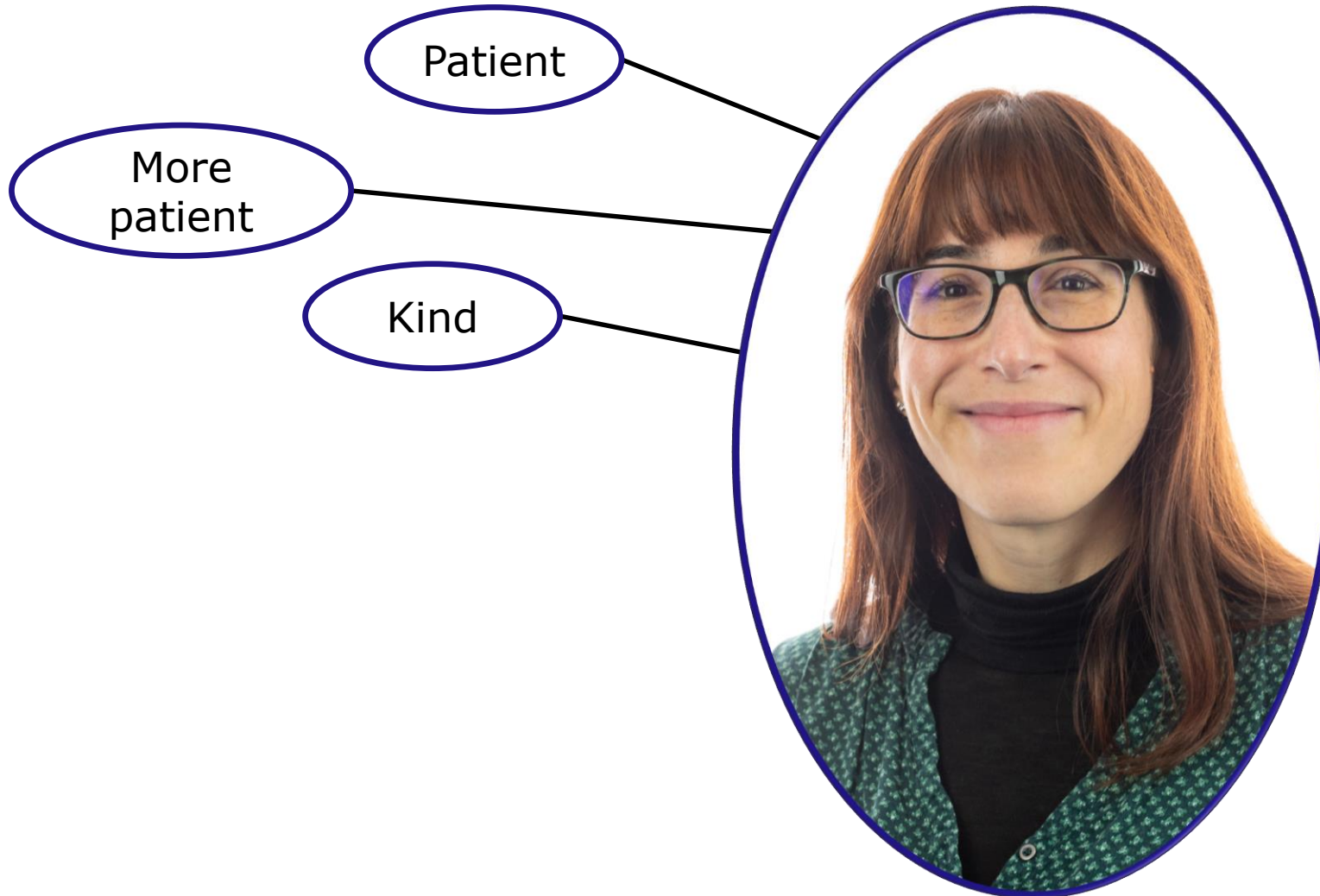
Patient



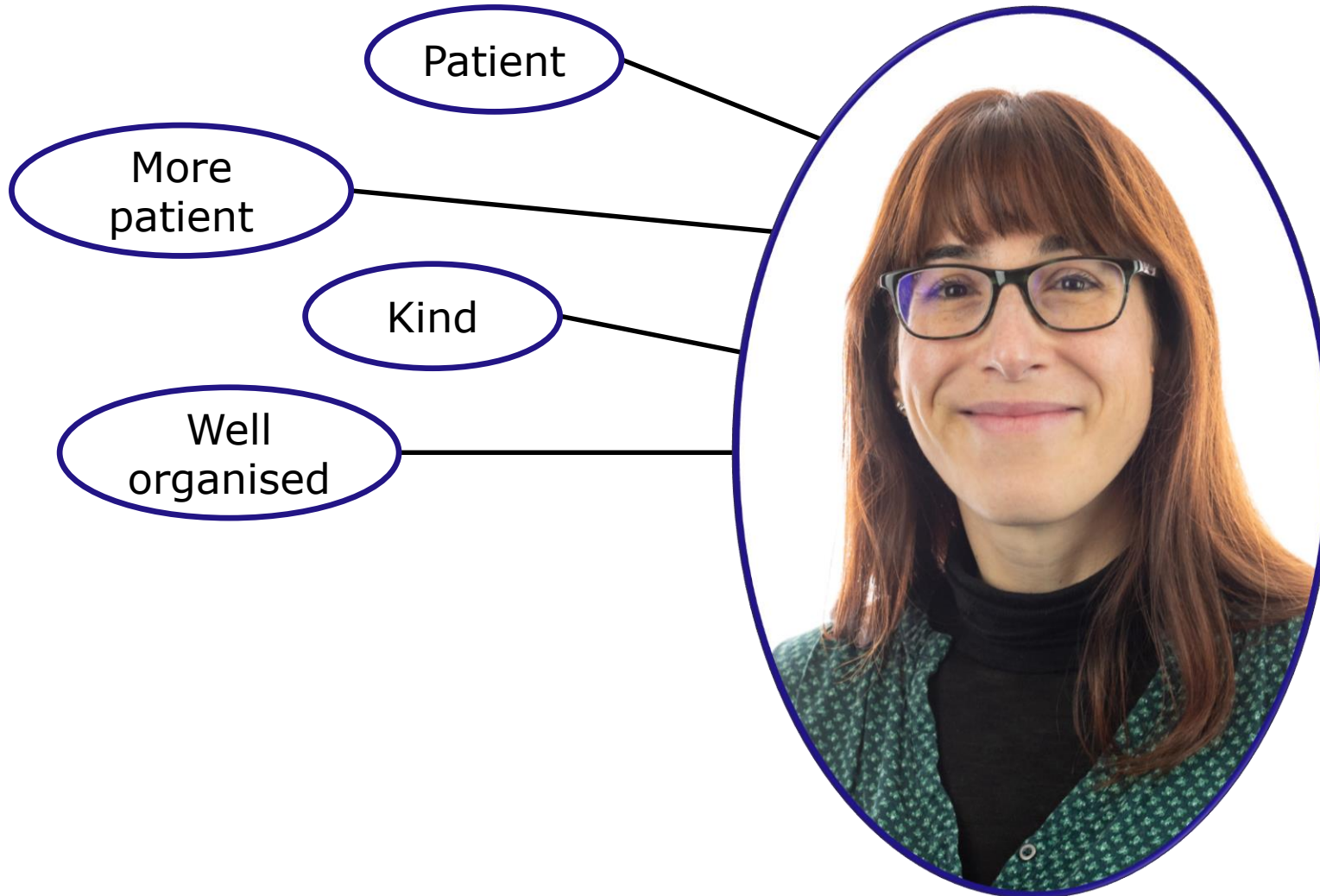
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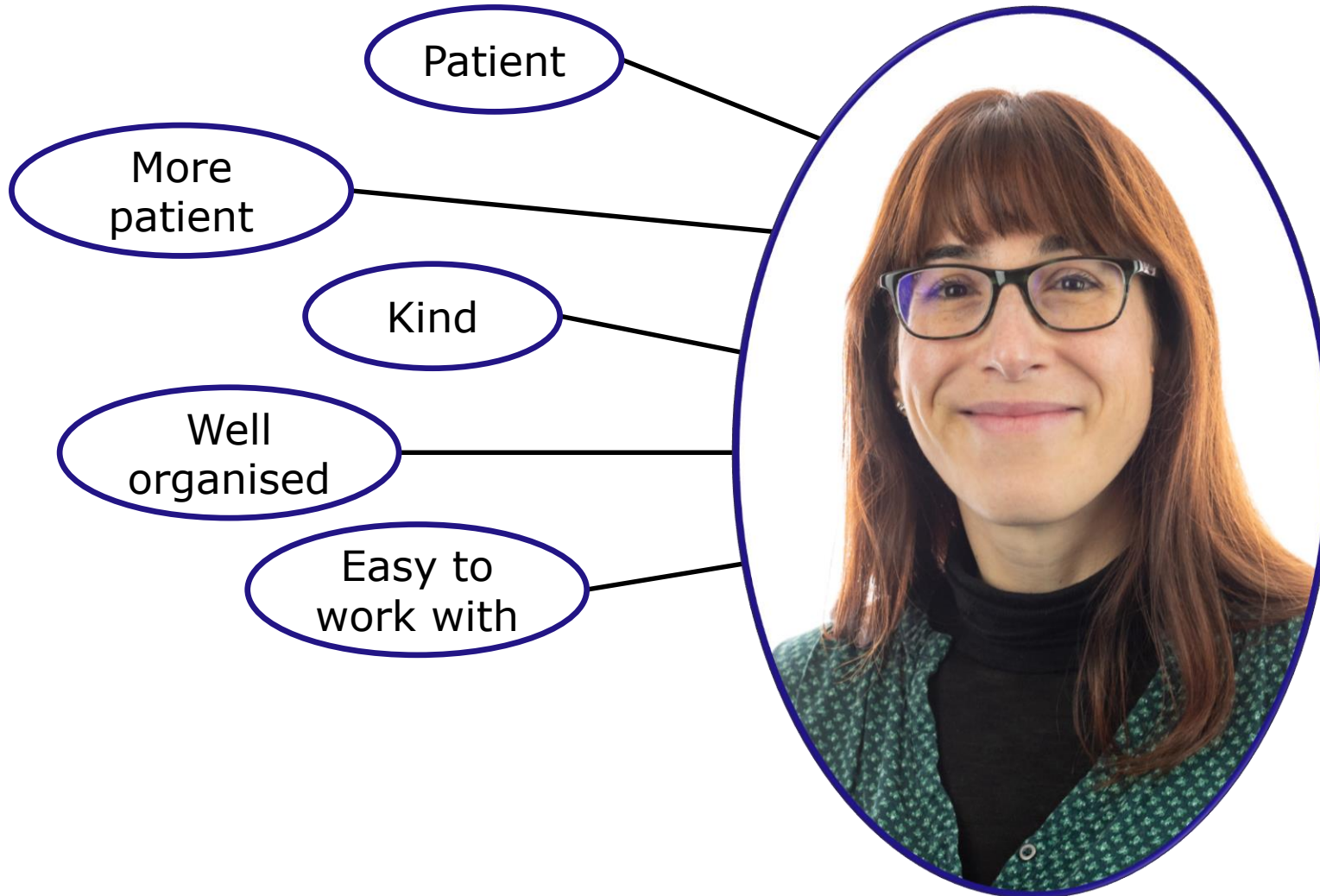
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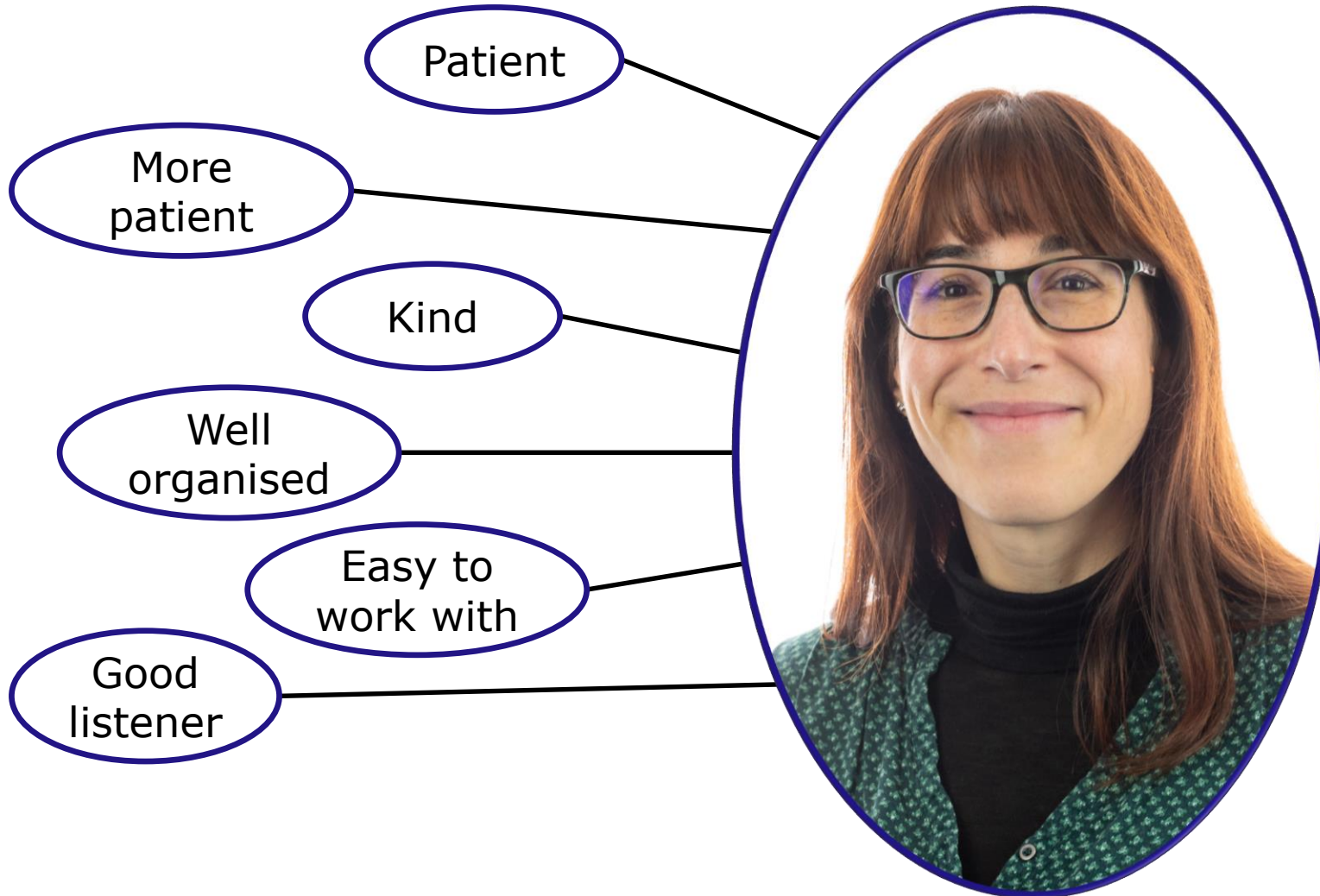
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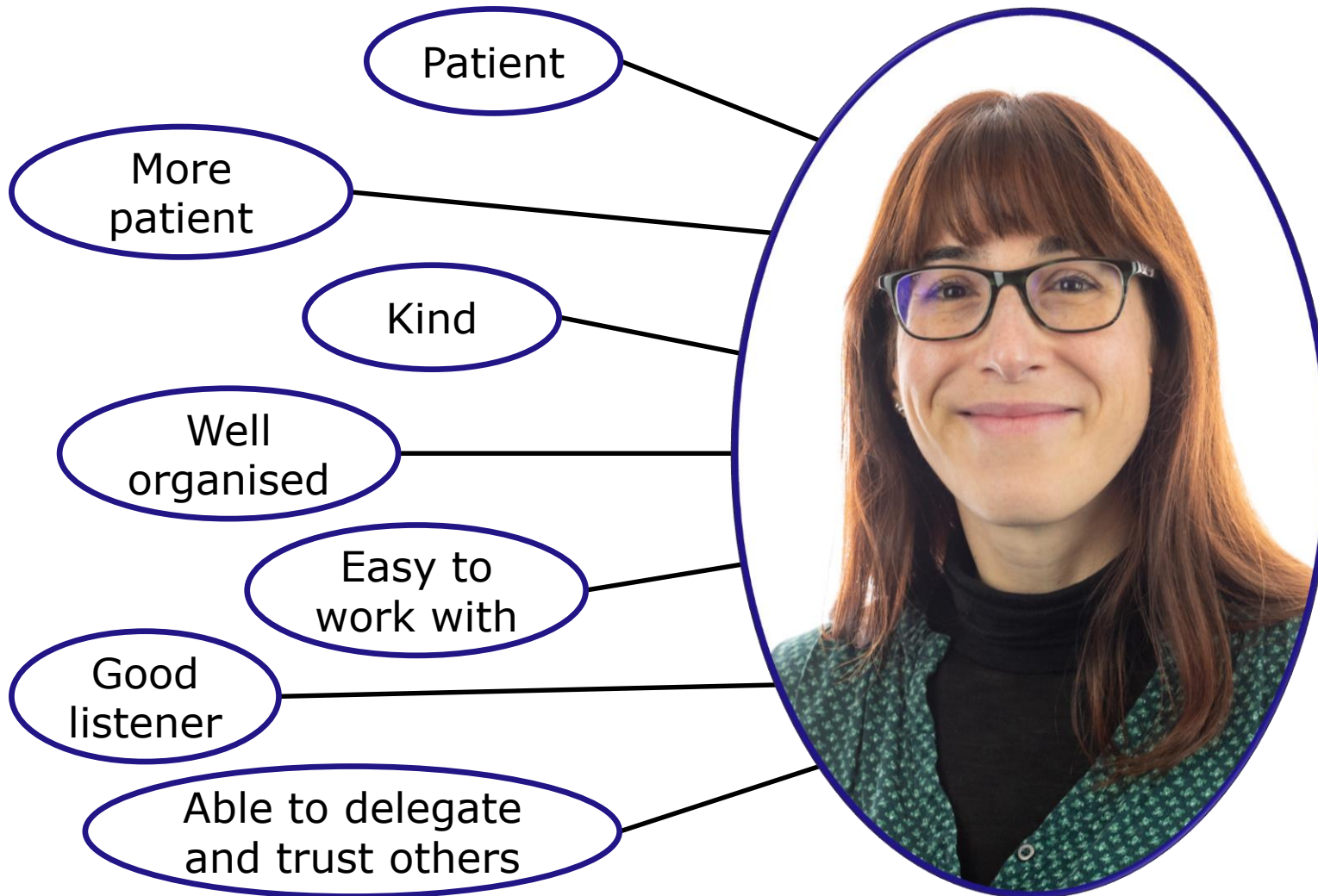
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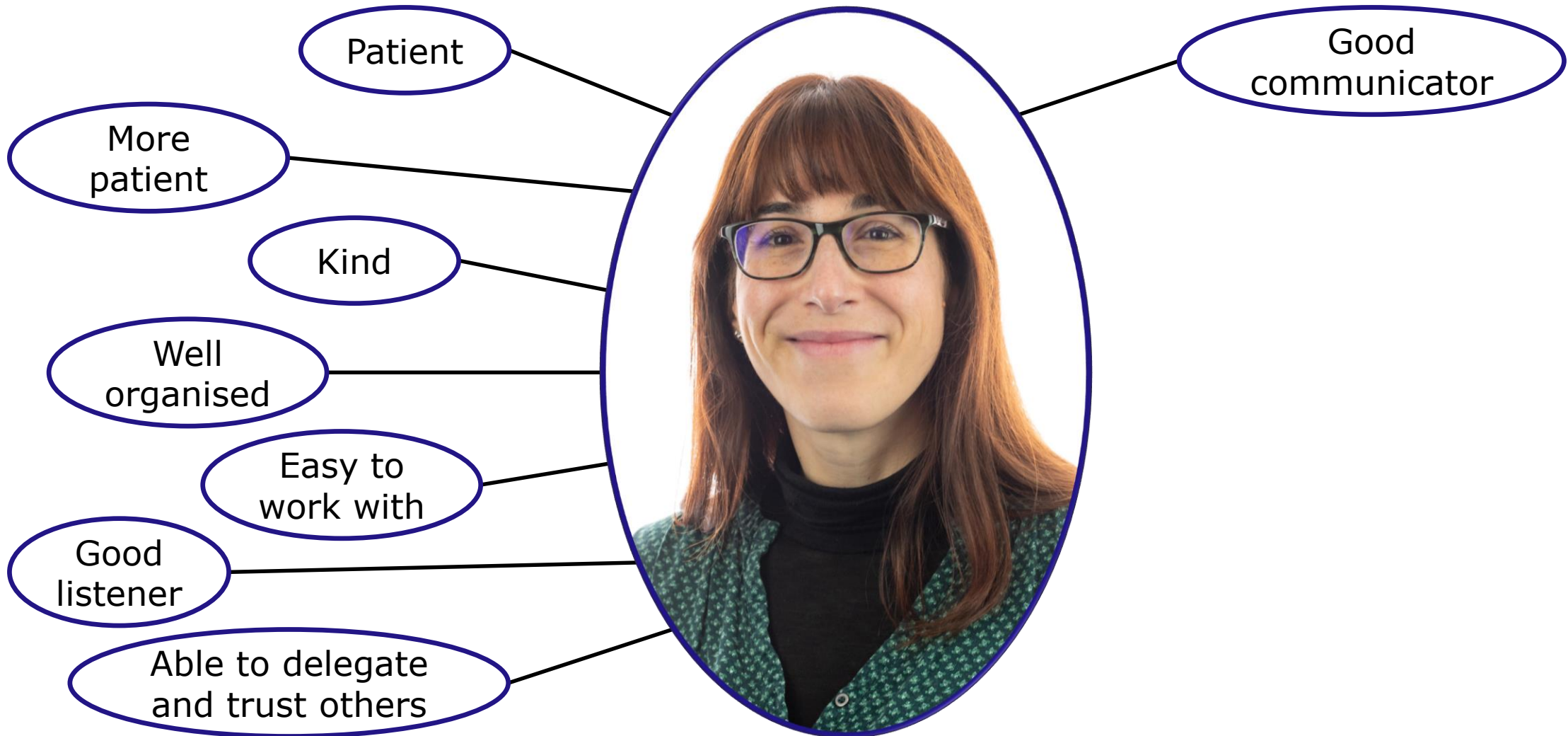
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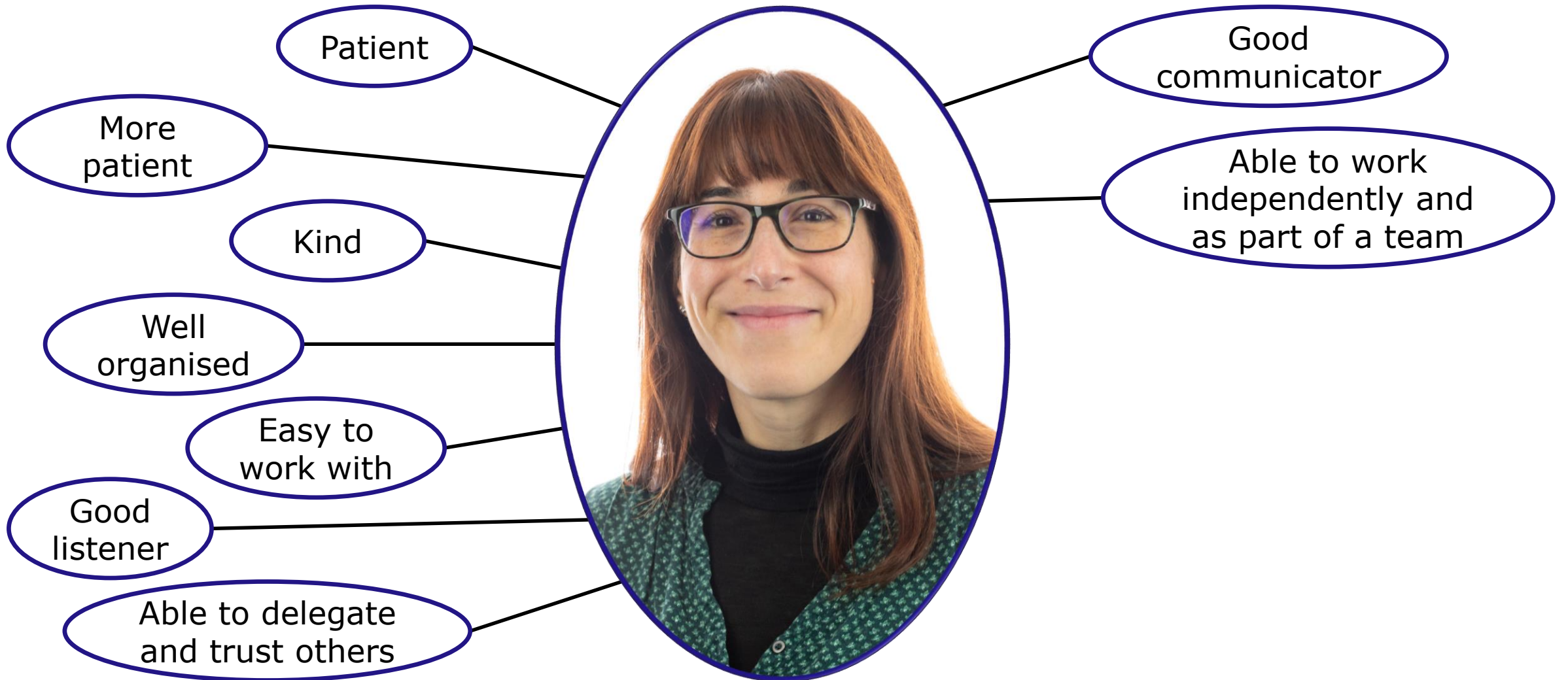
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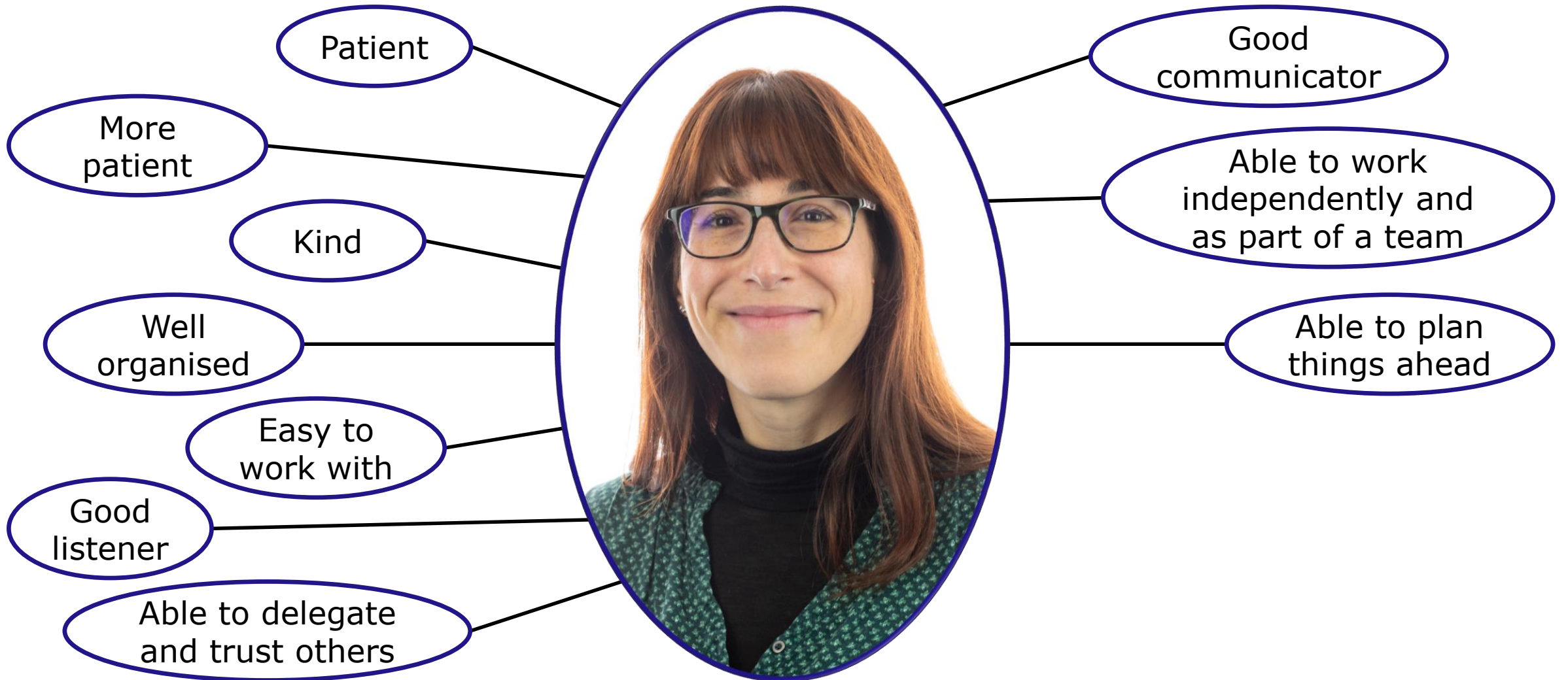
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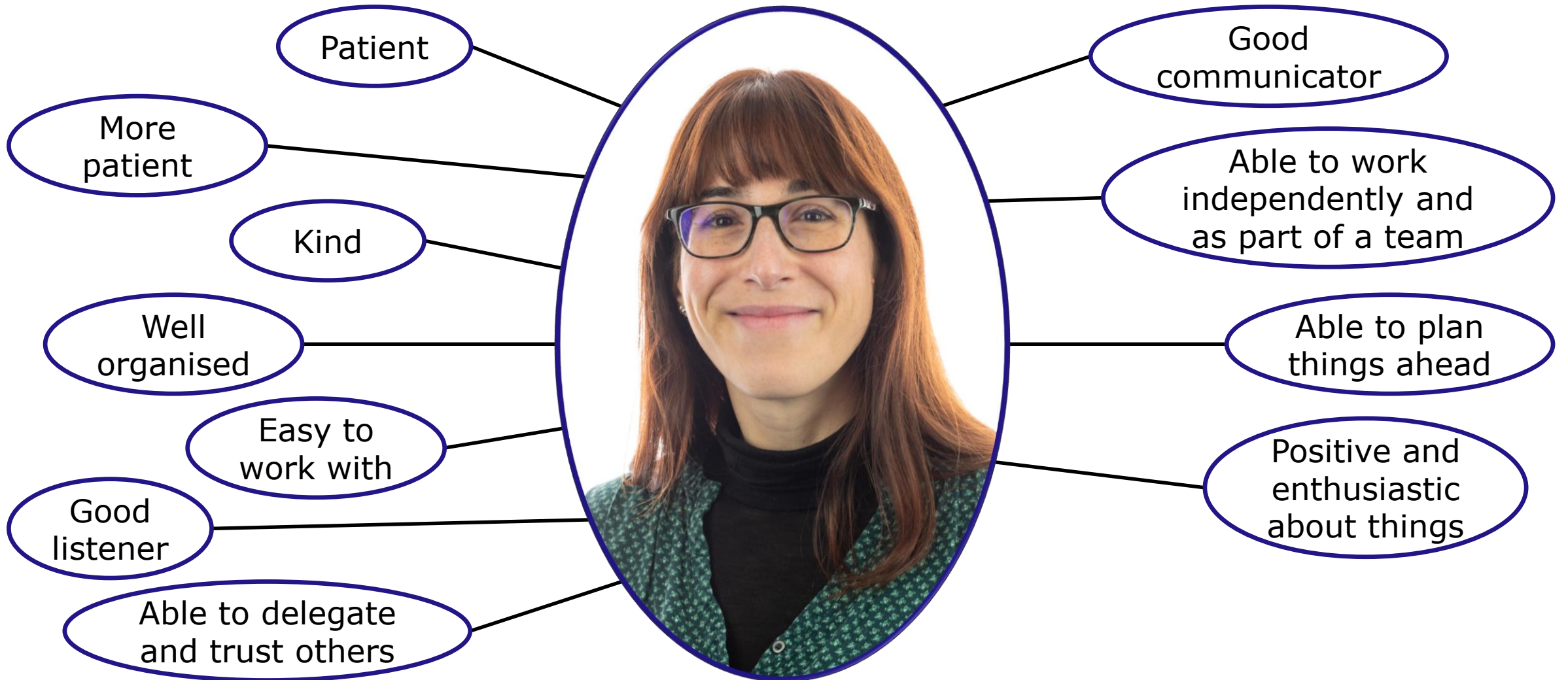
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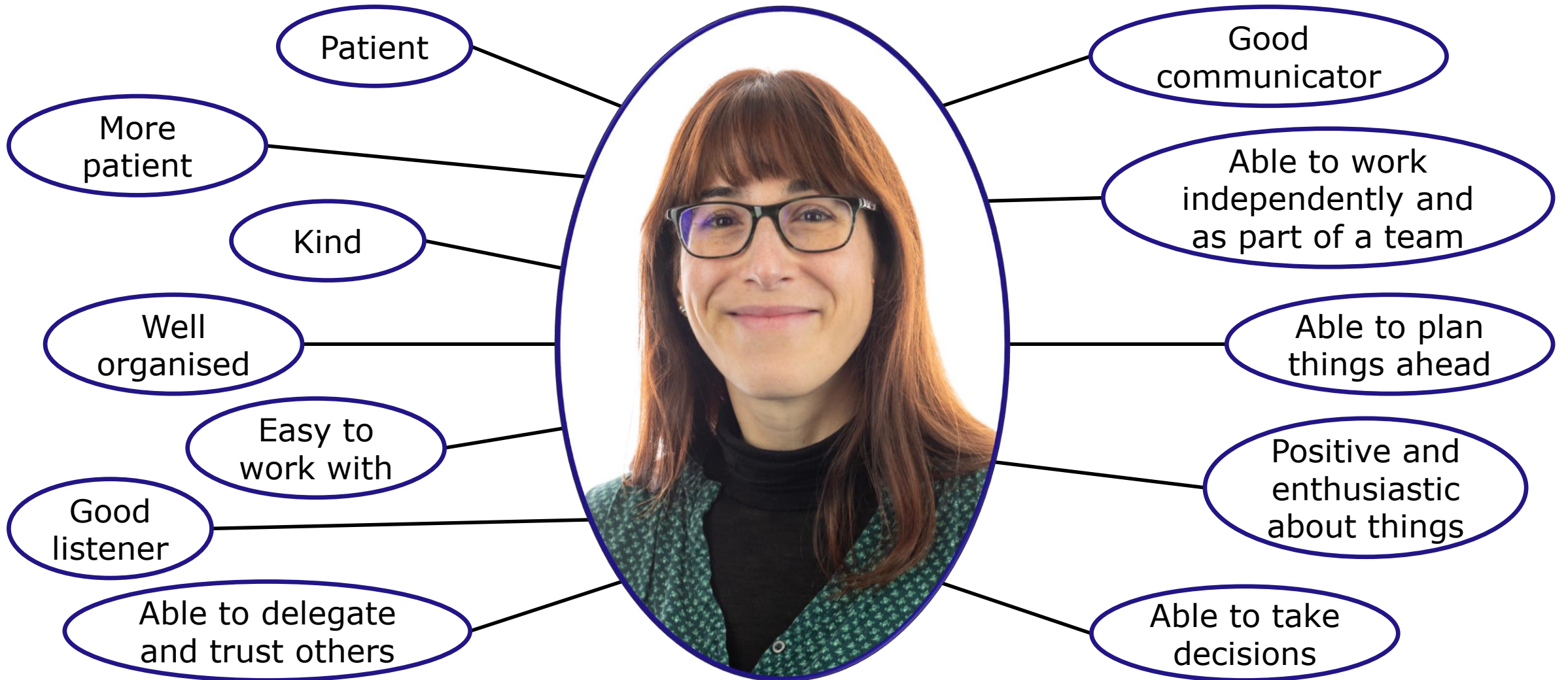
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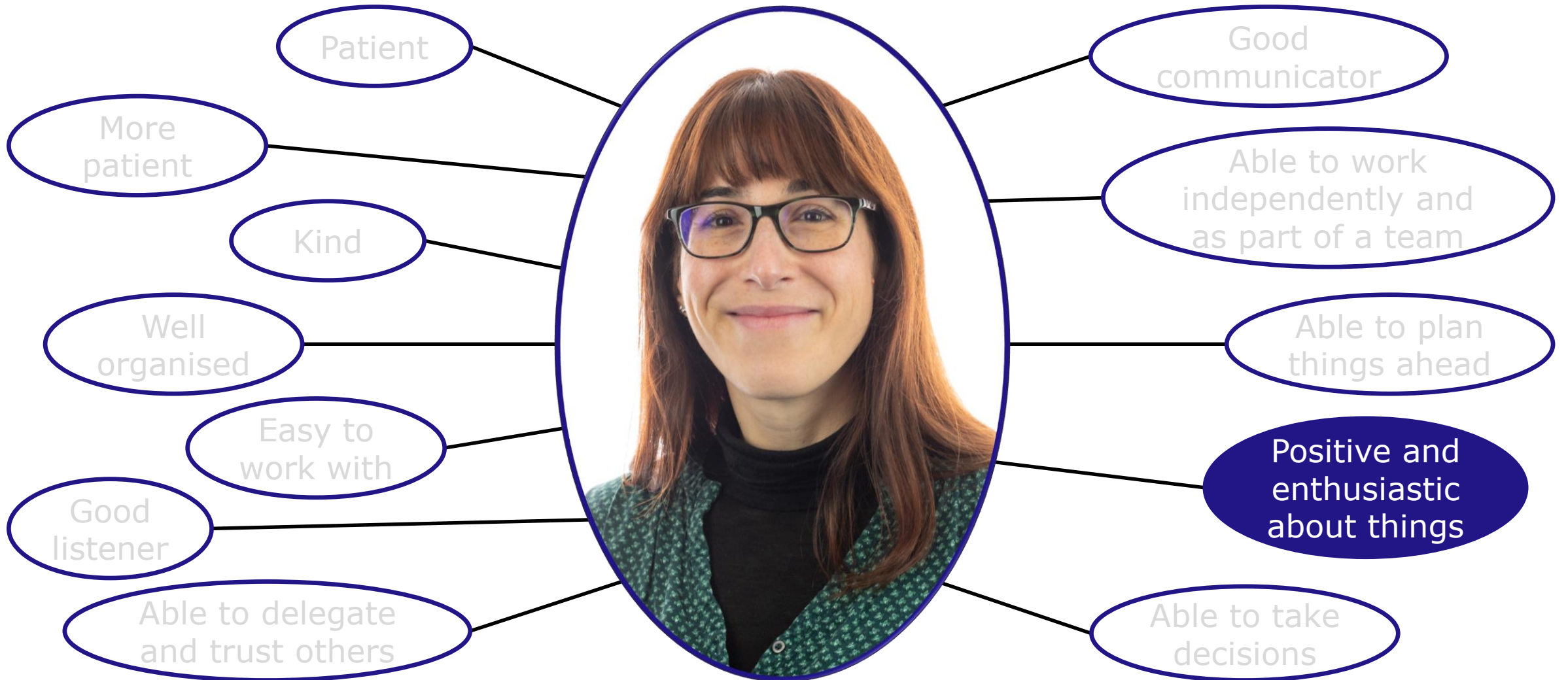
I am... – A more personal approach



I am... – A more personal approach



I am... – What has helped me succeed



My fellowship – Expectations



My fellowship – Reality



My fellowship – Reality

Recruiting is hard:
Lack of people with the right
knowledge and expertise



My fellowship – Reality

Recruiting is hard:
Lack of people with the right
knowledge and expertise



New PhD students need
training

Newly recruited postdocs
need training

My fellowship – Reality



Achieving my
R&D goals

My fellowship – Day 1

Preliminary measurements
do not go like expected

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Delay in technical programme

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My role as a PI – Day 1



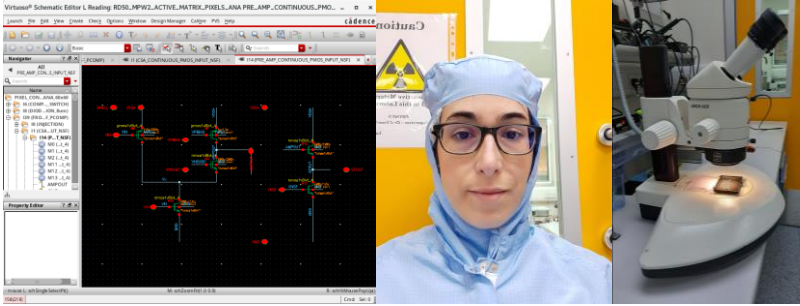
My role as a PI – Day 1



- I was the same exact person as before, with the same skills
 - yet I had a completely new role
 - and very different professional responsibilities!

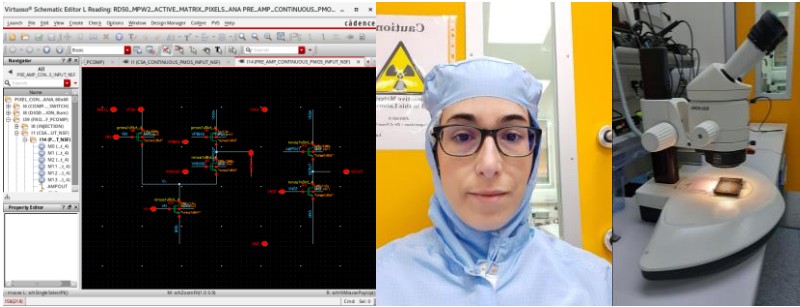


My role as a PI – After 18 months



- Being a PI means having less time to
 - Do sensor design
 - Do sensor measurements in the lab
 - Read and write papers

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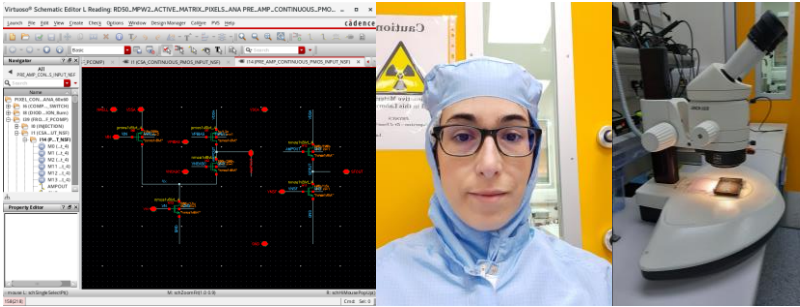


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- Planning, developing relationships and making impact
 - Strategy to achieve my R&D goals
 - Developing relationships with collaborators + industry
 - Make things happen at a larger scale



Thank you for listening

If you have any questions, I will be happy to take them