Subject Matter Expertise for Imaging Intelligence

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Introduction

An engineer of electro-optical sensors with operational proficiency in algorithm development and having sound exposure in life- & natural-sciences allied research process-automation, utilising diverse ranges of imaging technologies. Currently also working as subject matter expert for imaging science and technologies for multiple applications in a very agile and flexible collaborative settings with organisations with integrity and collective value creation at first place.

Industry-Life Sciences:

1. Chemical Research Biology & Digital Pathology-Bioefficacy (Agriculture, Agrochemical, Pharmaceutical)
2. Machine Assistive Diagnostics & Therapies (Genes, Cells and Body)

Industry-Natural Sciences:

3. Handling and curating the rawest form data to resource mapping from aerial and space platforms
4. Resources characterisation and seamless decision making pipelines for execution & implementation

Industry-Sensing Systems & Automation:

5. Machine Assistive Observation Improvement & Data-mining (Hardware-design and point pattern analysis)
6. Cognition to Recognition to AI (Bringing trust and reliability in customised automation)

Industry-Academia Consultancy:

7. Independent subject matter expertise to complement the project or product- or service-life cycle

Core functionality

Standardization of early-phase-research processes where imaging is involved; Optimization of imaging sensor design; Improving acquisition strategy; Developing data-processing pipelines; Automating manual-cognition to machine-recognition.

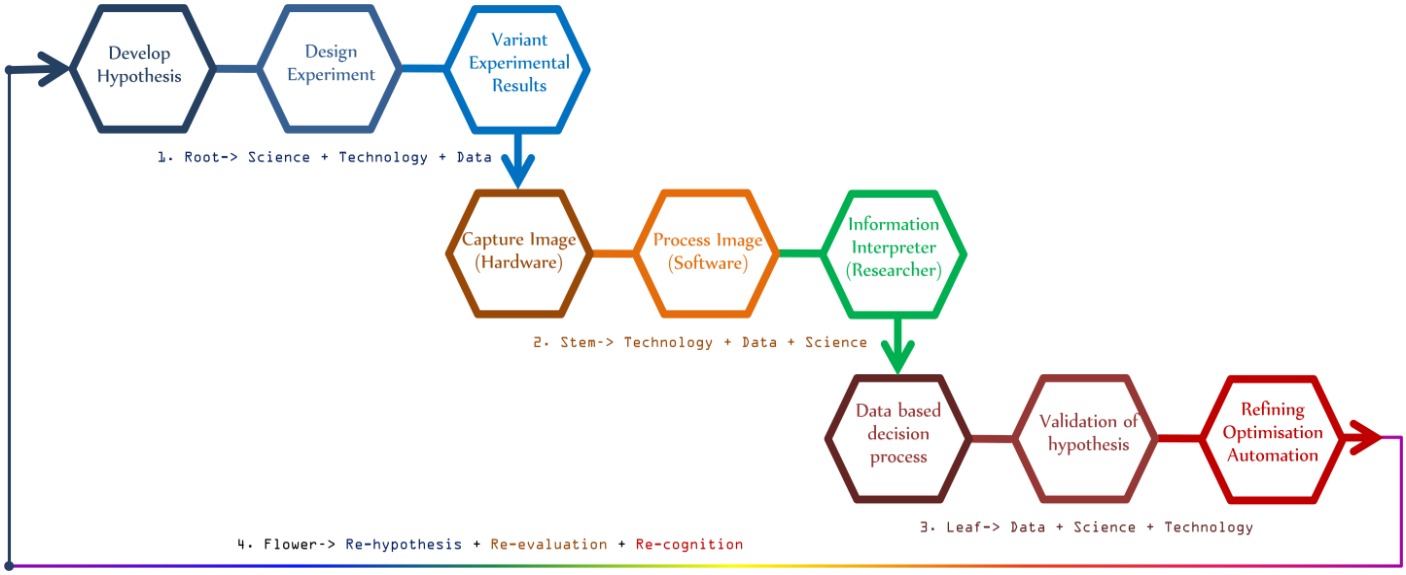

Figure 1. A simplified flowchart journey depicting my role and functionality as design- and optimisation-process

Driving Research Instinct:

With some sound exposures in globally scalable research settings (at the academia-industry interfaces) and in the world of rapidly changing and growing technologies, organisations with abundance of resources are unknowingly creating abundance of redundancies as digital liabilities rather than assets and need some more optimal approach that can improve the overall efficiency within the triangular constrains of performance, productivity and cost.

And hence always carry a basis or principle that, "Everyone needs lesser resources and everyone deserve more productivity in the limited life-span", and that bends me to think and collaborate on:

"Justifying what, when, and why which less is more and which more is less important"

Work & research experience

Subject Matter Expert- Imaging Science & Technology

Multiple Organisations

Jan 2025 - Present, (3 months), Basel and Zurich, Switzerland

Optimising STEM-allied Imaging-based Research & Operational Processes. Enabling the complementary support for integrating the imaging-based system-design, observation and assessment procedures in their product pipelines and research mechanisms in natural- and life-science domain for the multiple organisations operating globally and improving project-specific overall productivity, performance with optimal-cost, -time and -resource settings.

Segment of industries: Food & Agriculture, Healthcare, Environment, Pharmaceutical, Agrochemical, Cosmetics, Forensic, Space & Aerial Applications. An illustration at two scales, where and how collective value can be created for science-experts.

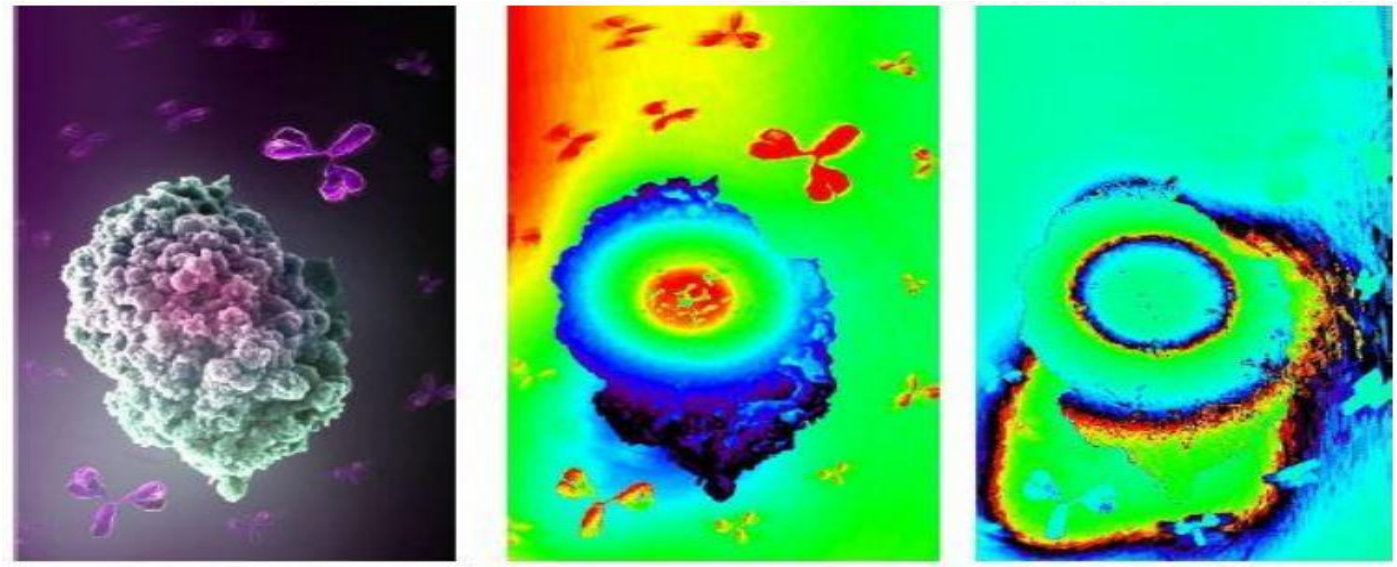

Figure 2a. A simplified illustration of chemical composition based target(s) characterisation at microscopic-level

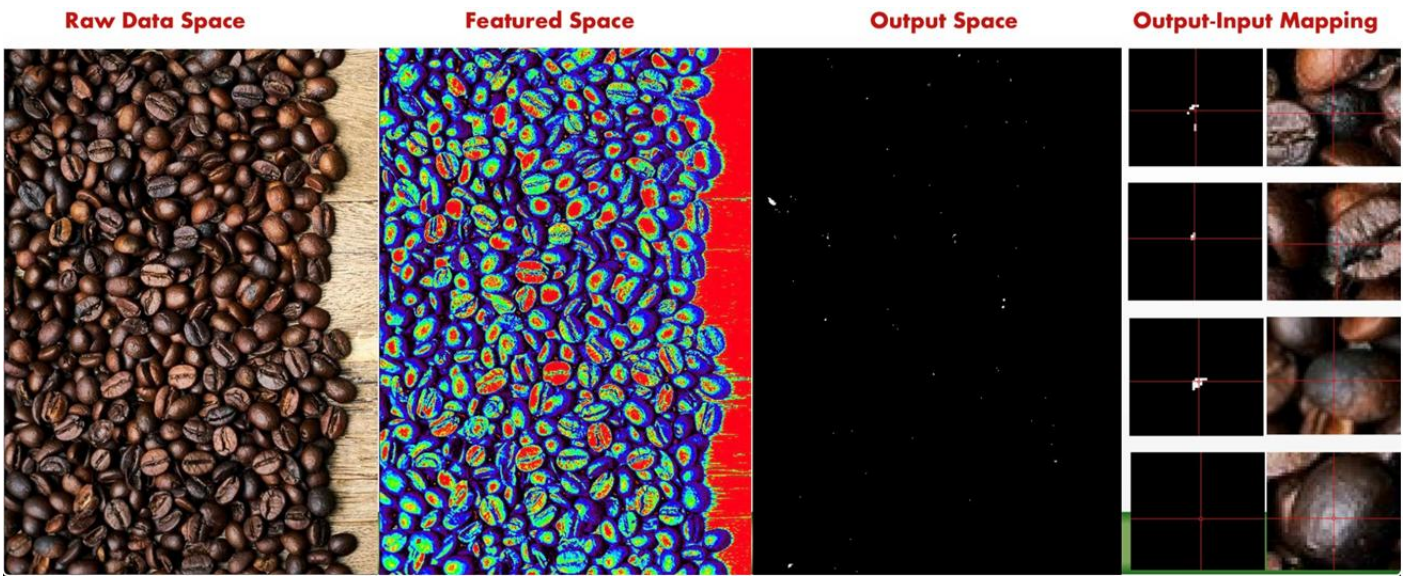

Figure 2b. A simplified illustration of chemical composition based target(s) characterisation at macroscopic-level

Head of Engineering

VraiSense

Jan 2023 - Present (1 year 7 months), Basel and Zurich, Switzerland

Enabling precise engineering in the digital transformation journey for life- & natural-sciences and point pattern analysis applications.

Scientific Researcher
Institute of Pesticide Formulation Technology (IPFT)
Mar 2022 - Sep 2022 (7 months)
Learned the basic science components for integrating the invasive and non-invasive digital methods of assessment in chemical research biology processes and implemented for in-vitro and in-vivo trials of a natural herbicide extracted from Solanum Virginianum plant for weed-management.

Electro-optical Imagery System Expert
Dhiaum Lab
Jan 2021 - Mar 2022 (1 year 3 months)
Simplifying the non-invasive imaging oriented solution chain process especially associated with multi-sourced multi-modal imaging, making it more efficient and relevant to end users.

Data Scientist
Dhiaum Lab
Jan 2020 - Jan 2021 (1 year 1 month)
Development of algorithms and pipelines for efficient & precise target-characterizations in imagery data that forms the basis for machine-based cognitive and re-cognitive capabilities.

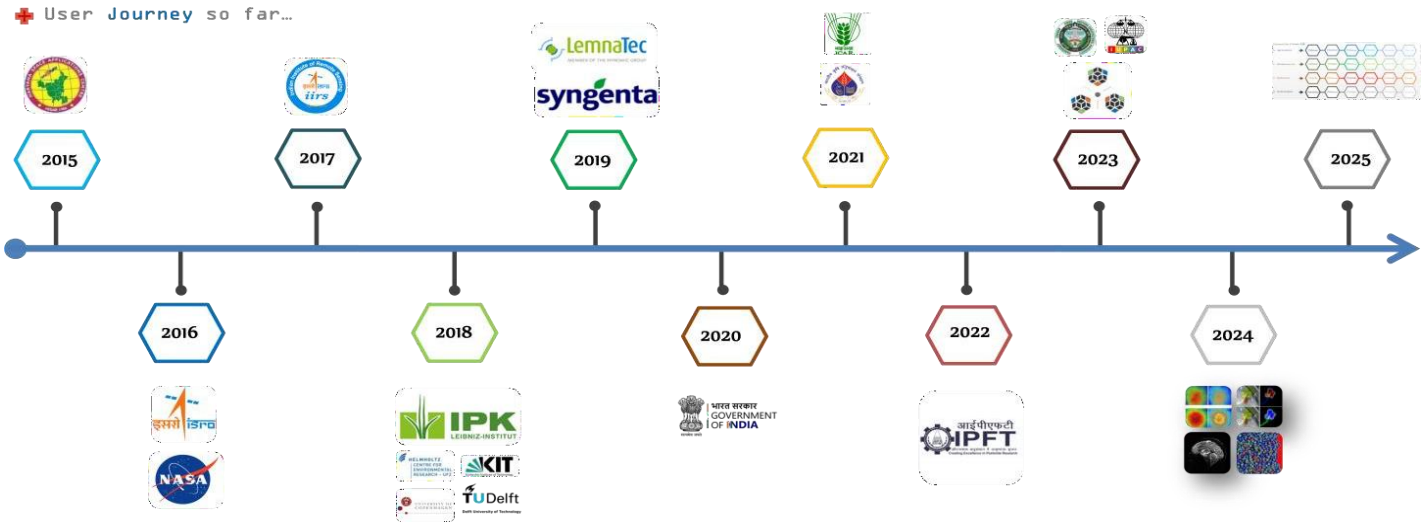

Figure 2. A simplified user-journey and exposures across transdisciplinary domains that laid down foundation

Hyperspectral Imaging & AI Expert
Dhiaum Lab
Feb 2019 - Jan 2020 (1 year)
Bringing clarity in R&D-oriented experimental designs, imagery-sensor specifications, payload mounting platform, spectrometric data-acquisition strategies, data handling & curation, data analytics & automation e.g. bio-assays annotation automation.

Hyperspectral Imaging & AI Expert | Syngenta & Lemnatec
Syngenta
Feb 2019 - Dec 2019 (11 months)
Developed a proof of concept and AI-pipeline for annotating high throughput imaging-based bio-assays using multi-sensors, assisting biologist, entomologist, pathologist in digital assessment and labelling the bio-matrix.

Digital Imaging and Phenotyping Expert
LemnaTec
Jul 2018 - Jan 2019 (7 months)
Development of a proof of concept that allows the basic science experts in unravelling the biological processes governing growth with optimal set of differential inputs in controlled environment.

Scientific Researcher
ISRO - Indian Space Research Organization

Apr 2015 - Apr 2018 (3 years 1 month)
During two years of Master's in Geoinformatics and one year of allied engagements as scientific researcher with different centres of ISRO and in NASA-ISRO collaboration project enabled the transdisciplinary exposures. The experiences include refining sensor-modalities and handling allied datasets curation and integration from different platforms including indoor labs, terrestrial, aerospace, space and inter-planetary missions.

Education

Stanford University Graduate School of Business

Mar 2024 - Dec 2025
The Stanford LEAD is a 1 to 2 year-time, 9-course business program covering key business fundamentals: innovation, finance, strategy, leadership and critical analytical thinking. My purpose is to learn and align these skill sets to STEM-oriented innovations in life-sciences in DACH-region.

Sapienza Università di Roma

Agrobiodiversity in a Changing Climate
Mar 2023 - Feb 2024
An extensive program on Agrobiodiversity organised by UN-FAO. Supported by Alliance of Biodiversity International and the International Center for Tropical Agriculture and Platform for Agrobiodiversity Research (PAR), Italian Development Cooperation, NaturaSì, Slow Food International and IFOAM Organics International.

Maharshi Dayanand University

Bachelor's degree, Electrical, Electronics and Communications Engineering
June 2006 - Dec 2010
Semiconductor Devices & Electronics Circuits, Data Structures & Computational Techniques, Analog & Digital Signal, Systems, and Communication, Computer Hardware Design, Antenna and Wave Propagation, Fields & Waves, Electronics Instrumentation, Robotics and Measurements.

Skills

Digital Transformation & Optimisation services for institutional industry and academia partners through improvement in imaging-technology related concept-design, hardware-implementation, engineering-integration, computational-efficiency, algorithmic-automation, scientific-data-fusion-fission and collective value creation for diverse industry involved in:
Chemical Research Biology • Food & Agriculture • Healthcare • Environment • Pharmaceutical • Agrochemical • Cosmetics • Forensic • Space & Aerial Applications

Belief that accumulates strength for keep going

Strength doesn't come from what we can do, rather strength comes from overcoming the things we thought we couldn't overcome. Collectively.

Adventurous and inspirational stories happen collectively, that too on this planet Earth
FLY, HIKE, CLIMB, REPEAT...
https://xcmag.com/magazine-articles/adventure-and-inspiration/fly-hike-climb-repeat/