Professor Bernhard Kainz

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Areas of expertise

AI in medicine; machine learning; computer vision; multi-modal data analysis; real-time algorithms

Employment history

Professor, Friedrich-Alexander-University Erlangen-Nürnberg, DE	since 09/2021
Professor, Dept. Computing, Imperial College London, UK	since 09/2024
Head of Department AIBE, Friedrich-Alexander-University Erlangen-Nürnberg, DE	04/2023 – 10/2025
Assoc. Prof. (UK Reader), Dept. Computing, Imperial College London, UK	09/2021 – 08/2024
Assoc. Prof. (UK Senior Lecturer), Dept. Computing, Imperial College London, UK	09/2019 – 08/2021
Ass. Prof. (UK Lecturer), Dept. Computing, Imperial College London, UK	10/2015 – 08/2019
Honorary Lecturer, ISBE, King's College London, UK	since 10/2015
Senior Research Fellow, ISBE, King's College London, UK	05/2015 – 10/2015
Marie-Curie Fellow, Department of Computing, Imperial College London, UK	03/2013 – 04/2015
Post-doctoral researcher, ICG, Graz University of Technology, AUT	05/2011 – 02/2013
Research Associate, ICG, Graz University of Technology, AUT	01/2008 – 04/2011
Research Associate, Dept. Urology, Medical University of Innsbruck, AUT	06/2007 – 12/2007
part-time Research Engineer, Test-lab for High-Voltage Engineering, Graz, AUT	06/2006 – 02/2013
part-time Research Engineer, Siemens Healthcare, Graz, AUT	2004 – 2007

Education

Ph.D. Graz University of Technology	10/2007 – 05/2011
Dissertation: "Ray-Based Image Generation For Advanced Medical Applications"	
(Advisor: Prof. Dieter Schmalstieg) (summa cum laude). Viva date: 05/25/2011	
M.Sc. Graz University of Technology (summa cum laude)	10/2005 – 10/2007
Specialization in Biomedical Engineering and Computer Vision/Graphics	
B.Sc. Graz University of Technology	10/2001 – 06/2005
Course: Telematics (Computer Science plus Electrical Engineering)	

Academic achievement summary

- ERC Consolidator Grant 2023: MIA-Normal
- 93 peer reviewed articles in scientific journals
- 133 peer reviewed papers at leading international conferences
- 3 patents
- 27 grants, $>$ €5.7M (as PI), $>$ €25.2M (total)
- 29 awards, prizes, and honours
- 3 books edited
- publications: https://scholar.google.com/citations?user=Igxq-YEAAAAJ&hl=en&oi=ao
- graduated 10, supervising 13 PhD students
- graduated 300+ UG project students

Awards and Prizes (selected)

- **2025** Certificate of Excellence in Recognition of Outstanding Service as Senior Area Editor for IEEE TMI
- **2024** Winner Track 2 ECCV Dataset Distillation Challenge (Li et al.)
- **2024** Best paper runnner-up MICCAI UNSURE (Zhang et al.)
- **2024** Winner of the MICCAI Medical Out-of-Distribution Analysis Challenge (Müller & Baugh *et al.*)
- **2023** Winner of the MICCAI Medical Out-of-Distribution Analysis Challenge (Müller & Baugh *et al.*)
- **2022** Best paper runner-up MICCAI UNSURE (Ouyang *et al.*)
- **2022** Winner MICCAI FETA Challenge (Li *et al.*)
- **2021** Best Paper Award MICCAI MLCN (Ma et al.)
- **2021** Best Demonstration runner-up MICCAI ASMUS (ThinkSono Ltd.)
- **2021** IEEE TMI Distinguished Reviewer Award
- **2020** Winner of the MICCAI Medical Out-of-Distribution Analysis Challenge (Tan *et al.*)
- **2020** Best paper award MICCAI iMIMIC (Hinterreiter *et al.*)
- **2019** Imperial President's award (team award for BioMedIA with D. Rueckert, B. Glocker, W. Bai)
- **2018** S.M. Perren research award (Verbruggen *et al.* 2018, J Biomechanics)
- **2017** Winning team of the Multimodal Brain Tumor Segmentation Challenge (BraTS'17) (Kamnitsas *et al.*).
- **2013-2025** ***22*** UG project student awards.
- **2017** IEEE PacivicVIS'17 best paper honourable mention award.
- **2017–now** Various student project prices, Google poster competitions, Corporate Partnership Awards.

- **2016** Insight-Award for the most aesthetic Visualization 2016: "Smoky hurricane" led by R. Khlebnikov.
- **2015** Short-listed for the Nurturing Research Talents Marie Skłodowska-Curie actions prize.
- **2014** Best paper honorable mention award EuroGraphics 2014.
- **2013** Short-listed for the OCG Heinz Zemanek Price.
- **2013** *Best poster* honorable mention for IEEE SciVis 2013.
- **2012** VCBM Karl-Heinz-Höhne 3rd award for "Crepuscular Rays for Tumor Accessibility Planning".
- **2012** Short-listed for the GI-dissertation price.
- **2011** *"Forum Technology and Society"* and *Ing. F. Schmiedl research prize* dissertation prize.
- **2011** *Best paper award*, International Symposium on Non-Photorealistic Animation and Rendering.
- **2008** *ACM Honorable Mention*, CGEMS SIGGRAPH Educational Committee.
- **2007** *Award for excellent performance as a student*, Graz University of Technology.

Selected Professional Activities

PC Chair in Computer Vision for IJCAI-ECAI	2026
Associate Editor Machine Learning for Biomedical Imaging journal	since 2025
Associate Editor *Medical Image Analysis* journal	since 2023
Chair MICCAI Advances in Simplifying Medical UltraSound (ASMUS)	2023
Nomination for the MICCAI Society Board	2021
Area Chair 25-27h Medical Image Computing And Computer Assisted Intervention	2018 – 2024
Associate Editor *IEEE Transactions on Medical Imaging*	since 2019
IPC Human-Centric Machine Learning @ NeurIPS	2019
Guest Editor Computers & Graphics, Visual Computing for Biology and Medicine	2019
Affordable imaging stream lead EPSRC CDT in Smart Medical Imaging	since 2018
IPC OAGM/AAPR Medical Image Analysis 2018	2018
General Chair RAMBO Intl. Workshop at MICCAI	2016 – 2018
Senior IPC: International Joint Conference on Artificial Intelligence	2017 – 2020
Paper Chair Visual Computing for Biology and Medicine (EG VCBM)	2017
IPC: biovis 2016 at IEEE VIS 2016	2016
IPC: Eurographics Intl. Workshop on Visual Computing for Biology and Medicine	2013 – 2016
IPC: AE-CAI Intl. Workshop at MICCAI	2012 – 2015
IPC: German CURAC	2012 – 2015

Current teaching

Four courses from programming to advanced machine learning (∼500 students/term)	since 2021
Computer Graphics (∼60-130 students/term),	since 2014
Deep Learning (∼400–800 students/term)	since 2019

Past teaching

Computer Architecture (∼130 students/term), Matlab 101, Computing Topics, (lecture and lab)	2015 – 2019
Computer Graphics at Peking University Summer School International (∼40 students)	07.2016
Matlab, lecture and lab, Imperial College London	2015 – 2017
Real-time Graphics 2, Medical Image Analysis, Augmented Reality (∼60 students)	
various courses, co-delivered lectures and labs, TUG (∼20-40 students)	2007 – 2013

Funded research projects	MM/YY	funder	total/group	type	role
AI in Biomedicine	10/26 – 09/31	StMWK	€800k	MSc Training	CoI
CHARMS	01/26 – 06/27	ERC	€150k	Research	PI
AI-US in Africa	09/23 – 07/24	NIH CHD	$236k	Research	CoI
ML safeguards	01/24 – 12/27	Audi	€350k	Research	PI
MIA-NORMAL	09/23 – 06/28	ERC	€2M	Research	PI
end-to-end MRI	01/23 – 12/25	DFG	€350k	Research	CoI
major equipment grant	12/22 – 12/24	DFG	€333k	Research	PI
Ultromics AI4Health CDT	10/20 – 09/24	Ultromics&UKRI	£150k	Research	PI
iFind techn. accelerator	10/20 – 09/22	Wellcome Trust	£500k	Translation	CoI
Imperial-TUM PhDs	01/20 – 09/24	Imperial-TUM	£177k	Research	PI
AI4Health EP/S011579/1	04/19 – 10/27	UK UKRI	£15M	PhD Training	CoI
joint venture with JKU	10/18 – 10/21	Upper Austria	£200k	Research	PI

Imaging & AI (19923)	12/18 – 11/21	Innovate UK	£10M/1.7M	Research	CoI
EP/S013687/1	04/19 – 03/22	UK EPSRC	£852k/770k	Research	PI
Imaging & AI (19923)	12/18 – 11/21	Innovate UK	£10M/1.7M	Research	CoI
Intel AI DevCloud	08/18 – 08/19	Intel	$20k	Research	PI
Impact acceleration grant	07/18 – 08/19	UK EPSRC	£12k	Translation	PI
EP/N024494/1	09/16 – 08/17	UK EPSRC	£120k	Research	PI
Wellcome/EPSRC (102431)	01/16 – 09/22	Wellcome Trust	£5M/800k	Research	CoI
Nvidia HW donations	03/16 – 06/18	Nvidia	€10k	Equipment	PI
ClinicImppact (610886)	02/14 – 01/15	EU FP7	€3M/400k	Research	Co-Appl.
F.A.U.S.T. - (325661)	05/13 – 04/15	EU FP7	€230k	Fellowship	PI
Schrödinger Scholarship	resigned for ⇑	Austrian FWF	€150k	Fellowship	PI
GOSMART (600641)	04/13 – 03/16	EU FP7	€4M/600k	Research	Co-Appl.
MVP (P23329)	09/11 – 08/14	FWF	€350k	Research	CoI
FutureLab	01/08	TU-Graz	€30k	Equipment	Co-Appl.
PhD student funding	2015–2028	various	∼£1M	$14\times$studentships	PI

Reviewing activities: NeurIPS, ICLR, CVPR, ICML, CHIL, MIDL, IJCAI, IJCARS, Elsevier MedIA, MELBA, TMI, Nature, Nature Biomedical Engineering, Nature Machine Intelligence, Radiology AI, IEEE TVCG, MICCAI, IEEE Computer, International Journal, VCBM, BVM, CURAC, CARS, Elsevier International Journal of Computerized Medical Imaging and Graphics, ACM Symposium on Virtual Reality Software and Technology, ACM SIGGRAPH and SIGGRAPH Asia, EG EuroGraphics, EG EuroVIS (International Journal Computer Graphics forum), Augmented Environments for Computer Assisted Interventions, IEEE PacificVis, Elsevier International Journal of Computer Methods and Programs in Biomedicine, IEEE International conference on Robotics and Automation (ICRA), International Journal of Computer Assisted Radiology and Surgery, International Conference on Advances in Computer Entertaiment Technology, IEEE Virtual Reality (VR), International Journal of Design Engineering, Elsevier International Journal of Computers & Graphics, High-Performance Medical Image Computing and Computer Aided Intervention *Reviewing for funding bodies:* UKRI, Medical Research Council, SNF, ERC, ANR, DFG, Horizon 2020, Cancer Research UK, Alexander von Humboldt Foundation

Memberships of professional bodies

Academic Fellow at the Data Science Institute at Imperial College London	since 2017
Institute of Electrical and Electronics Engineers (IEEE) - Senior Member since 2017	since 2009
Medical Image Computing and Computer Assisted Intervention (MICCAI) Society	since 2008

Selected public engagement activities/developing others

- **2017 – 2021**: http://corticalexplorer.com, http://ratchet.lucidifai.com/ http://kidneycaliper.lucidifai.com/ http://ibd.lucidifai.com/ – public medical imaging demos
- **2015 – 2018**: Imperial Festival and Imperial Fringe, presented and coordinated a team of 4-9; $>$15,000 audience each year; festivals are each 3 days.
- **since 2018**: MICCAI Early Career Researcher mentor (1-3 mentees per year)

Consulting and advising

- **since 2023**: Fraiya.com (ultrasound image analysis technology) – Scientific Advisor and Co-founder
- **2020-2022**: cydarmedical.com (interventional technology) – Scientific Advisor
- **2019–2020**: Ultromics.com (diagnostic technology) – Scientific Advisor
- **since 2017**: Thinksono.com (diagnostic technology) – Machine Learning Lead
- **2014 – 2017**: Exscitec (provider of STEM outreach activities) – Outreach for secondary schools