Curriculum Vitae & Motivation Letter for EFOMP-SIG:AI:

LOVRO BARIŠIĆ

PERSONAL DATA

First and last name:	Lovro Barišić
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EDUCATION

· 2011.-2017. ,2024.→	Ph.D student in medical physics ·https://www.pmf.unizg.hr/phy/en/teaching/doctoral/courses/medical_physics
· 2002.-2009.	dipl.ing. (higher than B.Sc., lower than mr.sc.) in physics · http://www.pmf.unizg.hr/phy
· 1998.-2002.	XII. Gymnasium , Zagreb (high school) · http://gimnazija-dvanaesta-zg.skole.hr/

WORK EXPERIENCE

· 2010.→	University Hospital Center Zagreb: Medical physicist, radiotherapy · www.kbc-zagreb.hr
· 2005-2010.	small, occasional student jobs

ABOUT ME

I have 14 years of experience in radiotherapy, my main obligations are radiotherapy planning, QA and to some extent exploring new techniques like commissioning diamond software (PTW). I have 12 years of experience with XiO (CMS/Elekta) and 2 years with Monaco (Elekta). With Varian systems I have only basic knowledge (things that I have learned on T-Box).

I'm participating in AAPM-challenge (IVIM-DMRI reconstruction), and generally speaking I have some zeal for solving problems (I will activate myself on other quests like https://grand-challenge.org/)

I'm proud to say that I'm a PACKT subscriber (online learning platform like Udemy), having access to many books and videos which boost my computer skills.

I'm a member of these societies: EFOMP individual member, CROMPA (Croatia's med.phys.society), CRPA (Croatia Rad.Protection Association).

Generally speaking I'm skilled in computer programming in general. I started with Pascal in 2002, continued with Matlab and SQL and Wolfram Mathematica (with which I'm very familiar). In later years my primary language is Python. But it is always good to use many languages in combination.

MOTIVATION FOR APPLYING TO EFOMP's SIG: AI

Even though Artificial Intelligence (AI) and automation is utilized in medical physics: diagnostic (e.g. low dose CT for lung cancer detection) and therapy (e.g. Ethos - automation of RT adaptation) - it is still not neary utilized enough.

Free and open source code is driving development sometimes even more than profitable companies do.

Black box products sold by commercial companies that utilize AI are also welcome, but are inferior to those that can "communicate" with med.physicist and other (3rd party) systems.

Therefore, in my opinion, med.physical community and organizations should seek for both:

→ establishing standards

→ free&open software endorsement ("skeleton")

To provide (free) basic level of AI-driven medical care and to sketch the path of AI development in general. If the power of making AI systems is only in the hands of big companies, the power of steering will be ONLY in their hands as well.

Example:

With "standards" I aim at obligating disclosure of procedural steps of an AI system (preventing "black-box" systems). In case of AI image diagnostics: expressing tracks that lead to a decision (e.g. "points" given to part of the image that indicate some meaning).

And furthermore that could be exported and (may be) utilized in other software - e.g. deformable registration: stretch-vector-field "deformation tensor". Derived from CBCT-CT registration, that could be utilized to deform patient's PET-scans also and on different vendor's systems if needed.

I wish to contribute and to learn within the AI development journey.

MISCELLANEOUS

Football, hobby electronics, computers, wolfram mathematica @raspberryPi. Driving license.

Foreign languages: English (actively), German (passively)

Married.

ATTENDED COURSES

· 2021. ICTP/IAEA Online-course: Image Guided RadioTherapy (IGRT), still in progress
· 2019. ESTRO's IMRT and other conformal techniques in practice, Budapest, Hungary
· 2018. AAPM-ISEP course: Challenges in Modern Radiation Therapy Physics, Ljubljana
· 2014. ESTRO's Advanced treatment planning, Budapest, Hungary
· 2013. ESTRO's Advanced imaging for physicists, Vienna, Austria
· 2013. ESTRO's Beam modelling and verification, Firenca, Italy
· 2012. College in Medical Physics, ICTP, Trieste, Italy
· 2012. ESTRO's Physics for modern radiotherapy, Gent, Belgium

ATTENDED CONFERENCES

· 2019. Alpe Adria Medical Physics Meeting: Graz
· 2016. Alpe Adria Medical Physics Meeting: Zagreb
· 2015. 10th Symposium of Radiation protection society, Šibenik
· 2014. Alpe Adria Medical Physics Meeting: Budapest
· 2011. Radiotherapy in treatment of malignant diseases: purpose and meaning: Banja Luka
· 2010. CMS Users meeting, Split

COAUTHOR OF FOLLOWING PAPERS

Barišić, L. et al. *Dose map analysis of IMRT fields with secondary MU check software Diamond, 9*th Alpe Adria Medical Physics Meeting, Graz 2019.

fulltext: https://drive.google.com/file/d/1Q8YyByprUxCt6o0ivs6y9p15Rp7Yy66F/view?usp=sharing

Stojković, R. et al. 2016. *Age and sex differences in genome damage between prepubertal and adult mice after exposure to ionising radiation*

fulltext: https://doi.org/10.1515/aiht-2016-67-2882

Murković, M. et al. *Evaluation of patient specific IMRT QA gamma passing rates to MLC penumbra modelling errors,* 7th Alpe Adria Medical Physics Meeting, Zagreb 2016.

abstract: http://bib.irb.hr/prikazi-rad?&rad=899178

Bibić, J. et al. *Evaluation of dose distribution due to setup uncertainties for bilateral head and neck radiotherapy treatment planning,* 6th Alpe-Adria Medical Physics Meeting, Budapest 2014.

abstract: http://bib.irb.hr/prikazi-rad?&rad=722677

Kos, S. et al. *IMRT and 3D CRT DVH plan comparison for head and neck cancer treatment,* 5th Alpe- Adria Medical Physics Meeting, Trieste 2012.

abstract: http://bib.irb.hr/prikazi-rad?&rad=787128

Barisic, L. et al. *3D Conformal Radiation Therapy (3D - CRT) Versus Intensity Modulated Radiation Therapy (IMRT) For Anal Carcinoma Case At UHC – Zagreb,* Proceedings of 10th Symposium of the Croatian Radiation Protection Association, 2015.

abstract: https://inis.iaea.org/search/searchsinglerecord.aspx?recordsFor=SingleRecord&RN=47111726

Grego, T. et al. *Intensity Modulated Radiation Therapy with Simultaneously Integrated Boost at University Hospital Centre Zagreb (KBC Zagreb),* Proceedings of 9th Symposium of the Croatian Radiation Protection Association, 2013.

fulltext:http://www.iaea.org/inis/collection/NCLCollectionStore/_Public/44/128/44128536.pdf?r=1