PERSONAL INFORMATION

Dr. **Mirjana Filipović**, **Viši naučni saradnik**
(rođeno prezime: **Stanivuk**)

Karađorđev trg 26, 11080 Zemun, Beograd
+381 11 6771 024 (posao) ; +381 11 2600500 (kuća) +381 63 7409878
mira@robot.imp.bg.ac.rs; mirjana.filipovic@pupin.rs
Skype mirjana.filipovic90

| Date of birth 25/03/1955 | Nationality Srpkinja

JOB APPLIED FOR
POSITION
PREFERRED JOB
STUDIES APPLIED FOR

Robotika

WORK EXPERIENCE

1979 - 1991

Inženjerska Istraživanja

- Od 1979 počinje da radi u Institutu "Mihajlo Pupin", Beograd, Srbija, gde i sada radi. Do 1991. prioritetna interesovanja su inženjering zadaci i projekti u Centru za Pneumatiku, čiji je rukovodilac bio Mr. Vladimir Kokotović. Radila je na istraživanju, razvoju, dizajnu, realizaciji i puštanju u rad koordiniranog upravljanja elektro-pneumatskih sistema za prečišćavanje pitke vode, sistema u hemijskoj i farmaceutskoj industriji, u industriji hrane, kao i razvoj komponenti i opreme za pneumatsku poštu. Realizovala je niz tehničkih rešenja i učestvovala u nizu projekata u ovoj oblasti.

Učešće u najvažnijim projektima (1979-1991)

1. Projektovanje, upravljanje, regulacija i razvoj opreme postojenja za prečišćavanje vode za piće u vodoprivredi Srbije: Banovo Brdo (tri faze), Bežanija (tri faze), Bele Vode (tri faze), Novi Sad (dve faze), Niš, Ruma, Sombor, Novi Pazar, Vranje, Lebane, Surdulica, Nova Gradiška, Valjevo, Pančevo, Banja Luka, Kruševac, Kumanovo, Titova Mitrovica, Gnjilane, Aleksinac. u periodu 1980 - 1992.

2. Projekat I procesnoj industriji prerade kože: Telman, Ostškov, Kursk, 1983 – 1985.

3. Projekat sistema pneumatske pošte: Klinički centar, Inex, Glavna pošta – Beograd, Glavna pošta – Novi Sad, Klinički centar – Kraljevo. u periodu 1982 -1992.

4. Projekat dekarbonizacije industrijske vode. «HIP» Pančevo, 1986. · Projekat Ministarstva nauke republike Srbije.

Industrijska tehnička rešenja (1980-1992)

1. Elektro- pneumatski kontrolni uređaj kao deo opreme u procesu prečišćavanja vode za Vodoprivredu : Beograd (Bele Vode), Niš, Vranje, Kumanovo, ... (1980 – 1992).

2. Pneumatski regulacioni sistemi nivoa u filterskim instalacijama vodosnabdevanja, Vodoprivrede Novi Pazar, Valjevo, "HIP" Pančevo, Vranje, Nova Gradiška ... u periodu (1980 - 1992).

3. Pneumatski aktuatorski sistemi datih prečnika: 125, 160, 200, Gradski vodovod. u periodu (1980 – 1992).

4. Uređaj za pneumatsko merenje i indikaciju nivoa u rezervoarima sa kiselinom ili bazom, "HIP",

Pančevo, 1985.

5. Upravljački sistem, dizajniran i razvoj, kao i komponente za pneumatsku poštu. Klinički centar i Inex. Beograd, 1985 – 1992.

6. Projektovanje, razvoj i izvodjenje pneumatske pošte po fazama: Inex i Klinički centar Beograd, 1985 – 1992.

7. Projektovanje i razvoj stanice i skretnice za sistem pneumatske pošte.. 1980-1992.

- U prriodu 1991. – juni 2015 oblast i tema interesovanja Dr. Mirjane Filipović je multidisciplinarna oblast Robotika.

1991 – juni 2015

Naučna istraživanja

1. Industrijske, humanoidne i Cable suspended Parallel Robots -CPR strukture

Oblast industrijskih i humanoidnih robotskih struktura.

U ovoj oblasti naučnog istraživanja treba pomenuti sledeće glavne rezultate. Definisala je:

- zglob na novi način, u zavisnosi od radnog stanja motora (aktivan ili zakljucan) i tipa elastičnog ili krutog elementa (prenosnik i/ili link) koji sledi iza motora.
- povezanost Euler-Bernoulli jednačine i jednačine kretanja u bilo kojoj tački elastične linije posmatranog elastičnog tela.
- proširenje Euler-Bernoulli jednačine sa više aspekata:
  - elastična deformacija je posledica ukupnog dinamičkog momenta robotskog sistema,
  - generalna forma transversalne elastične deformacije je definisana kao superponiranje partikularnog rešenja oscilatornog karaktera (rešenje Daniela Bernoullija) i stacionarnog rešenja prinudnog karaktera (što je posledica prisutnih sila),
  - Euler-Bernoulli jednačina (zasnovano na poznatim zakonima dinamike) je proširena sa svim silama koje učestvuju u formiranju momenta savijanja posmatranog moda, što uzrokuje različitost strukture tih jednačina za svaki mod,
  - generalni oblik elastične linije direktno proističe iz dinamike kretanja sistema i ne može biti predstavljena sa jednom skalarnom jednačinom nego je sa tri jednačine, kojima se definiše pozicija i sa još tri jednačine kojima se definiše orjentacija svake tačke elastične linije,
  - prigušenje je sastavni deo karakteristike elastičnosti realnog sistema, tako da je prirodno uključena u Euler-Bernoulli jednačinu,
  - struktura matrice krutosti mora da ima takođe elemente van dijagonale, zbog prisustva snažnog kuplovanja između uvedenih sila elastičnosti.
- nova struktura matematikog modela aktuatora: Kod elastičnih robotskih sistema, momentu motora se suprotstavlja moment elastičnosti prvog elastičnog elementa koji sledi odmah iza motora. Ako je to fleksibilni link, tada se momentu motora suprotstavlja moment savijanja prvog elastičnog moda koji sledi iza motora, a takođe, i delimično momentima savijanja ostalih elastičnih modova koji su

sekvencijalno povezani iza prvog moda. U zavisnosti od njihove pozicije, svi modovi prvog linka koji slede posle motora, utiču na dinamiku kretanja motora. Matematički model motora je povezan sa ostatkom nehanizma preko ekvivalentnog momenta elastičnosti. Naravno, ako elastični prenosnik sledi direktno posle motora, tada se momentu motora suprotstavlja moment uvijanja prenosnika. Nova struktura matrice krutosti i matematičkog modela motora su posledica kuplovanja između prisutnih modova svakog linka.

- definisano je, analiziranoi modelirano četiri tipa elastičnih industrijskih konfiguracija i jedna složena konfiguracija biped-platforma. Mathematički modeli tih tipičnih elastičnih konfiguracija su definisani na prethodno zacrtanim principima a istovreneno su formirani programski paketi za svaku konfiguraciju ponaosob:

    a) Programski sistem, EBTLOM **:** "Euler-Bernoulli Theory Link One Mode", 2009,

    b) Programski sistem, TMODES: "New form of the Euler-Bernoulli equation in presence of high modes (Two MODES)", 2010,

    c) Programski sistem, TIPEX: "Robotic Example in Vertical Plane with Elastic Gear and Flexible Link in the Presence of the Second Mode and Dynamic External Force", 2011,

    d) Programski sistem, VERSPACE: "The spatial movement of the vertical elastic links" , 2011.

    e) Programski sistem, FLEXI: "Humanoid robotic system with rigid and elastic elements that walks on immobile/mobile platform", 2009.

- realizacija softverskog paketa FLEXI koji se bazira na univerzalnoj formi robotskog sistema. U ovom softveru definisan je algoritam za formiranje matematićkog modela kompleksnog humanoidnog robotskog sistema bipeda koji hoda na nepokretnoj/pokretnoj platformi bilo koje konfiguraije sa krutim i (ili) elastičnim elementima prenosnika.

- prisustvo dinamičkog kuplovanja između bipeda i pokretne platforme tokom realizacije robotskog zadatka.

- proceduru za kreiranje referentne trajektorije koja obuhvata ili ne obuhvata veličinu elastične deformacije i efekte kuplovanja između kretanja bipeda i platforme.

- proceduru za modeliranje elastičnosti u kontaktu đona stopala.

- opštu formu matematičkog modela robotskog sistema (može biti humanoidni lokomocioni sistem sa krutim i (ili) elastičnim prenosnicima) koji hoda po odabranoj konfiguraciji platforme, nepokretne ili pokretne (sa krutim i (ili) elastičnim prenosnicima).

2. Oblast vazdušnih robota, Cable suspended Parallel Robots, CPR sistema

- **CPR sistemi koji imaju krutu užad**

U ovoj oblasti naučnog istraživanja treba pomenuti sledeće glavne rezultate. Definisala je:

a. više tipova CPR sistema čiji je radni prostor oblika paralepipeda koristeći samo tri motora. Ovi CPR sistemi nisu redundantni. Ovakvim načinom dizajniranja je postignut maksimum radnog prostora sa samo tri motora. Radni prostor je udvostručen u odnosu na slične postojeće konstrukcije sa istim brojem motora.

b. novu metodologiju kojom se formira kinematički model CPR sistema, koja uključuje trajektoriju, brzinu i ubrzanje što predstavlja preduslov za

formulaciju dinamičkog modela. Ta nova procedura je nazvana "KinCPR-Solver" što znači "Kinematic Cable Parallel Robot Solver". Uspostavljena je veza između kretanja nosača kamere i ugaone pozicije motora. Jakobijeva matrica igra važnu ulogu u razvoju dinamičkog modela CPR sistema.

c. kompleksnu relaciju između rezultujućeg momenta opterećenja (moment koji deluje kao opterećemje na prvu, drugu i treću osovinu motora) i spoljašnjih sila (koje deluju na nosač kamere), preko Lagranžovog principa virtuelnog rada. Zbog konstruktivne kompleksnosti CPR sistema, Lagranžov princip virtuelnog rada je adaptiran iz više razloga.

d. dinamički model sistema, gde Lagranžov princip virtuelnog rada učestvuje u matematičkom modelu motora.

e. snažno kuplovanje između svakog kretanja motora, kao i kuplovanje između kretanja svakog motora i kretanja nosača kamere.

f. u ovom trenutku ne postoji opšti oblik programskog paketa koji može biti korišćen za automatsko modeliranje različitih tipova CPR sistema. To znači da svaki tip CPR sistema treba ručno razviti i programirati.

g. šest tipova CPR sistema: RSCPR, RFCPR, CPR-A, CPR-B, CPR-C i CPR-D sistem, su predstavljeni, modelirani i analizirani. Svaki od ovih CPR sistema su ručno razvijeni i progranirani kroz programske pakete. Programski paket ORIGI, ORVER, AIRCAMA, AIRCAMB, AIRCAMC, i AIRCAMD su razvijeni za analizu i sintezu RSCPR, RFCPR, CPR-A, CPR-B, CPR-C i CPR-D sistema, respektivno.

- **CPR sistemi koji imaju elastičnu užad**

U ovoj oblasti naučnog istraživanja treba pomenuti sledeće glavne rezultate. Definisala je:

h. novu metodologiju koja povezuje ugaone pozicije motora i elastične deformacije odgovarajućeg užeta. Za definisanje kinematičkog i dinamičkog modela CPR sistema sa elastičnim užadima pre svega je bitno razumevanje njegove fizikalnosti, odnosno bitno je prvo definisati matematički model iste CPR konstrukcije sa krutim užadima. Model krute CPR konstrukcije služi za generisanje upravljačke strukture tj . za definisanje referentne trajektorije kretanja nosača kamere i referentne trajektorije ugla kretanja osovine svakog motora. Za modeliranje CPR sistema sa elastičnim užadima značajno je definisati vezu između ugaone pozicije motora i elastične deformacije odgovarajućeg užeta koja nazvana fiktivna koordinata. Ta relacija je definisana za svako kretanje motora i odgovarajuću deformaciju užeta. Ta nova procedura je nazvana "ED+M metod", što znači "Elastic Deformations plus Motor motion" metoda.

i. vezu između fiktivnog elastičnog momenta opterećenja i spoljašnje sile, koja je izračunata korišćenjem Lagranžovog principa virtuelnog rada i izražena je preko Jakobijeve matrice. Jakobijeva matrica elastičnog CPR sistema povezuje brzinu spoljašnjih koordinata sa brzinama fikrtivnih koordinata.

Programski paket ORFLEX, OGTOM, OGIFLEX i OVTOM, su razvijeni za analizu i sintezu eSCPR ("elastic ropes S-type Cable Suspended Parallel Robot, with one mode"), eSCPR ("elastic ropes S-type Cable Suspended Parallel Robot, with two modes"), eFCPR ("elastic ropes F-type Cable Suspended Parallel Robot, with one mode") i eFCPR ("elastic ropes F-type Cable Suspended Parallel Robot, with two modes") sistema, respektivno.

Implementacija osobine elasticnih uzadi u CPR sistem je u fazi razvoja.

Učešće u obrazovanju I formiranju naučnih kadrova

(2012- juni 2015)

Dr Mirjana Filipović vodi studenta doktoranta Ljubinka Kevca od pocetka 2012. juni 2015, kao njegov komentor. Doktorant Ljubinko Kevac je u ovom periodu uspešno položio sve ispite na Elektrotehnickom fakultetu u Beogradu i istovremeno savesno radio na svojoj doktorskoj disertaciji. Doktorsku disertaciju radi puno radno vreme u Institutu Mihajlo Pupin u Centru za Robotiku gde je za njegovo stručno i naučno-istraživačko angažovanje odgovorna Dr Mirjana Filipović. Tema doktorske disertacije je analiza, sinteza, modeliranje i upravljanje CPR (Cable-suspended Parallel Robot) sistema.

Naučne publikacije (sumarno)

- 2 poglavlja u istraživačkim monografijama
- 14 radova u internacionalnim časopisima
- 11radova u nacionalnim časopisima
- 38 radova na internacionalnim konferencijama
- 1 predavanje po pozivu
- 31 rad na nacionalnim konferencijama
- 15 programskih paketa
- 2 patenta

Business or sector Public sector – Research nd Development

2013 – Jun 2015 **Viši naučni saradnik**

Univerzitet u Beogradu, Institut Mihajlo Pupin,Volgina 15, 11000 Beograd, Srbija, http://www.pupin.rs/RnDProfile/filipovic.html

Business or sector Public sector

2008 - 2013 **Naučni saradnik**

Univerzitet u Beogradu, Institut Mihajlo Pupin,Volgina 15, 11000 Beograd, Srbija, http://www.pupin.rs/RnDProfile/filipovic.html

Business or sector Public sector

EDUCATION AND TRAINING

2007 **Doktorske studije u tehničkim naukama:** PhD

Doktorirala, 2007: Teza: "Doprinos modeliranju elastičnosti aktivnih mehanizama sa posebnim osvrtom na humanoidne robote", Elektrotehnički fakultet, Univerzitet u Belgradu, Srbija. Mentor: Prof. Dr. Veljko Potkonjak

1998 **Magistarske studije u tehničkim naukama:** MSc

Magistrirala, 1998: Teza: "Analiza dinamičke tačnosti manipulacionih robota ", Elektrotehnički fakultet, Univerzitet u Belgradu, Srbija. Mentor: akademik Miomir Vukobratović

1978 **Redovne studije u tehničkim naukama (5 godina studija)** BSc

Diplomirala, 1978: Na smeru za Automatsko upravljanje, Mašinski fakultet, Univerzitet u Belgradu, Srbija, Mentor: Prof. Dr. Ljubomir Grujić

PERSONAL SKILLS

Mother tongue(s): Serbian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	B1/2	B1/2	B1/2	B1/2r	B1/2
	Professional language schools certificates.				
	Integral part of regular education, from primary to university level..				

Levels: A1/2: Basic user - B1/2: Independent user - C1/2 Proficient user
Common European Framework of Reference for Languages

Communication skills
Organisational / managerial skills
Job-related skills

Specijalnost:

- Modeliranje
- Matematika
- Mehanika
- Elastičnost
- Kontrol
- Programiranje

Computer skills

- Radno iskustvo sa kompjuterskim operativnim sistemima: MS-DOS, MS-WINDOWS; VAX/VMS, UNIX, Windows, Vista, Linux.
- Veštine naprednog programiranja: MATLAB/SIMULINK
- Napredno korišćenje aplikativnog softvera: Corel Draw, Latex, MS Office (Word, Excel, Power Point), Photo Shop, etc.

Other skills
Driving licence

- B tipa od 1979

ADDITIONAL INFORMATION

Publications
Presentations
Projects
Conferences
Seminars
Honours and awards
Memberships
References

116 publikovanih radova – vidi Annex 1
Učešće u realizaciji 8 istraživačkih projekata - vidi Annex 2:
Broj citata: 25 (https://www.scopus.com/cto2/main.url?stateKey=CTOF_590559438&authors=15836742700&origin=AuthorNamesList)

- 2008, član Naučnog veća Instituta MIHAILO PUPIN,
- 2011, Member of IEEE Robotics & Automation Society .

ANNEXES

Annex 1 : Mirjana Filipovic: Bibliography

Poglavlja u istraživačkim monografijama

[1] Mirjana Filipovic, „Mathematical model of aerial robots as the basis for new research", Scientific Review, Series: Scientific and Engineering, Special Issue Nonlinear Dynamics Dedicated to Milutin Milankovic (1879-1958), Serbian Scientific Society, Belgrade 2013, pp. 303-318. ISSN 0350-2010.

M14=4

[2] Ljubinko Kevac, Mirjana Filipovic, „PRECISE TRAJECTORY TRACKING OF ROBOTIC MECHANISM", Scientific Review, Series: Scientific and Engineering, Special Issue Nonlinear Dynamics Dedicated to Milutin Milankovic (1879-1958), Serbian Scientific Society, Belgrade 2013, pp. 419-428. ISSN 0350-2010.

M14=4

Radovi u internacionalnim časopisima

[1] Miomir Vukobratovic and Mirjana Filipovic, „Dynamic Accuracy of Robotic Mechanisms, Part 1: Parametric Sensitivity Analysis", Mechanism and Machine Theory, 2000, Vol. 35, No. 2, pp. 221-237.

M22=5

[2] Mirjana Filipovic and Miomir Vukobratovic „Dynamic Accuracy of Robotic Mechanisms, Part 2: Simulation Experiments on Results Discussion", Mechanism and Machine theory, 2000, Vol. 35, No. 2, pp. 239-270.

M22=5

[3] Mirjana Filipovic, Miomir Vukobratovic, „Contribution to modeling of elastic robotic systems", Engineering & Automation Problems, International Journal, September 23. 2006, Vol. 5, No 1, pp. 22-35.

M23=3

[4] Mirjana Filipovic, Veljko Potkonjak, Miomir Vukobratovic: „Humanoid robotic system with and without elasticity elements walking on an immobile/mobile platform", Journal of Intelligent & Robotic Systems, International Journal, 2007, Volume 48, pp. 157 - 186.

M23=3

[5] Mirjana Filipovic, Miomir Vukobratovic: „Complement of Source Equation of Elastic Line", Journal of Intelligent & Robotic Systems, International Journal, online April, June 2008, Volume 52, No 2, pp. 233 - 261.

M23=3

[6] Mirjana Filipovic, Miomir Vukobratovic: „Expansion of source equation of elastic line", Robotica, International Journal, online April, November 2008, Volume 26, No 6, pp. 739-751.

M23=3

[7] Mirjana Filipovic „New form of the Euler-Bernoulli rod equation applied to robotic systems", Theoretical and Applied Mechanics, Society Mechanics, Belgrade, 2008, Volume35, No. 4, pp. 381-406.

M24=3

[8] Mirjana Filipovic, „Euler-Bernoulli Equation Based on the Knowledge of the Classical Dynamics", Engineering & Automation Problems, International Journal, 2009, No 1, pp. 18-34.

M53=1

[9] Mirjana Filipovic, Ana Djuric, „Whole analogue between Daniel Bernoulli solution and direct kinematics solution", Theoretical and Applied Mechanics, Society Mechanics, Belgrade, 2010, Volume 37, No.1, Pages 49-78.

M24=3

[10] Mirjana Filipovic, „Relation between Euler-Bernoulli Equation and Contemporary Knowledge in Robotics", Robotica, International Journal, Cambridge University Press, 2012, Vol. 30, No.1, pp. 1-13.

M23=3

[11] Mirjana Filipovic, Ana Djuric, „Mathematical Model of the Aerial Robot base on its Geometric Relationship", FME Transactions, Scientific journal, Faculty of Mechanical Engineering, Belgrade, Serbia, ISSN: 1450-8230, Vol. 42, No. 2, pp. 133-142, 2014, doi: 10.5937/fmet1402133F.

M24=3

[12] A. M. Djuric, V. Jovanovic, M. Filipovic, Lj. Kevac, (2014), „The Reconfigurable Machinery Efficient Workspace Analysis Based on the Twist Angles", Special Issue on: Advanced Intelligent Systems and Mechatronics, International Journal of Computer Applications in Technology (IJCAT), accepted for publication in April 2014. Vol. 53, No.4, 2016.

M53=1

[13] M. Filipovic, A. Djuric and Lj. Kevac, „The rigid S-type cable-suspended parallel robot design, modelling and analysis", Robotica, Available on CJO 2014 doi:10.1017/S0263574714002677, 2014. IF=0.894 ISSN 0263-5747, IF=0.894

M23=3

[14] Mirjana Filipovic, Ana Djuric, Ljubinko Kevac, „The significance of adopted Lagrange principle of virtual work used for modeling aerial robots, Applied Mathematical Modelling 39 (2015), pp. 1804-1822, DOI information: 10.1016/j.apm.2014.09.019, ISSN 0307-904X, IF=2.158, 2015

M21=8

Radovi na internacionalnim konferencijama

[1] Mirjana Filipovic, „Influence off small variations of robot dynamic parameters on the accuracy of trajectory tracking", European Centre for Peace and Development, Vienna, Austria, September 1996, 480-485.

M33=1

[2] Mirjana Filipovic, Miomir Vukobratovic, „Modeling of Flexible Robotic Systems", Computer as a Tool, EUROCON 2005, The International Conference, Belgrade, Serbia and Montenegro, Volume 2, 2005, pp. 1196 - 1199.

M33=1

[3] Mirjana Filipovic, „Expansion of the Euler Bernoulli equation", Buletinul Universității „Politehnica", Seria Electrotehnica, Electronica si Telecomunicatii, Timisoara, Romania, Tomul 53 (67), 2008, Fascicola 1, 25-26 September 2008, pp. 27-32.

M33=1

[4] Mirjana Filipovic, Miomir Vukobratovic, „New Interpretation of the Euler-Bernoulli Equation", 6th International Symposium on Intelligent Systems and Informatics - SISY 2008, Subotica, Serbia, 26-27 September 2008.

M33=1

[5] Mirjana Filipovic, „Elastic Deformation as a Result of the Total Dynamics of the System Movements", 2nd International Congress of Serbian Society of Mechanics (IConSSM 2009), Palic (Subotica), Serbia, 1-5 June 2009, A-07, pp. 1-14.

M33=1

[6] Mirjana Filipovic, „ Elastic Robotic System with Analysis of Collision and Jamming „, 7th International Symposium on Intelligent Systems and Informatics - SISY 2009, Subotica, Serbia, 25-26 September 2009.

M33=1

[7] Mirjana Filipovic, „ Euler-Bernoulli Equation Today „, IROS 2009: IEEE/RSJ International Conference on Intelligent Robots and Systems, St. Louis, MO, USA, 11-15 October 2009, pp. 5691-5696.

M33=1

[8] Mirjana Filipovic, „ Contribution to Expansion of the Euler Bernoulli Equation and its Solution, 8th International Symposium on Intelligent Systems and Informatics - SISY 2010, Subotica, Serbia, 10-11 September 2010.

M33=1

[9] Mirjana Filipovic, „ Euler-Bernoulli equation forever but now in a new form, 9th International Symposium on Electronics and Telecommunications, ISETC 2010, Ninth Edition, Timisoara, Romania, November 11-12, 2010.

M33=1

[10] Mirjana Filipovic, „ Euler-Bernoulli Equation Two and a Half Centuries Later", 5th European Conference, ECCSC 2010, Belgrade, Serbia, November 23-25, 2010, pp. 306-309.

[11] Mirjana Filipovic, „ The Procedure for the Application of a New Form of Euler-Bernoulli Equation and Its Solutions", 9th International Symposium on Intelligent Systems and Informatics - SISY 2011, Subotica, Serbia, September 2011. pp. 85-90, 2011.

M33=1

[12] Mirjana Filipovic, „Coupling between motor motion of Cable-suspended Parallel Robot", XI International Scientific – Professional Symposium INFOTEH-JAHORINA 2012, Faculty of Electrical Engineering, East Sarajevo, Bosnia and Herzegovina, pp. 481-486, 21-23 March 2012.

M33=1

[13] Mirjana Filipovic, „The purpose of the development of the Euler-Bernoulli equation ", XI International Scientific – Professional Symposium INFOTEH-JAHORINA 2012, Faculty of Electrical Engineering, East Sarajevo, Bosnia and Herzegovina, pp. 497-502, 21-23 March 2012.

M33=1

[14] Mirjana Filipovic, Ana Djuric, Ljubinko Kevac „Contribution to the modeling of Cable-suspended Parallel Robot hanged on the four points", IROS 2012: IEEE/RSJ International Conference on Intelligent Robots and Systems, Vilamoura, Institute for System and Robotics, University of Coimbra, Portugal, 3526-3531, October 7-12, 2012.

M33=1

[15] Mirjana Filipovic, Ljubinko Kevac and Branimir Reljin, „Comparative analysis of two configurations of aerial robot," 2012 SISY IEEE 10th Jubilee International Symposium on Intelligent Systems and Informatics, Subotica, Serbia, Obuda University, Hungary, 211-216, September 20-22, 2012.

M33=1

[16] Ljubinko Kevac and Mirjana Filipovic, „Trajectory tracking algorithm for elastic robotic mechanism," 2012 SISY IEEE 10th Jubilee International Symposium on Intelligent Systems and Informatics, Subotica, Serbia, Obuda University, Hungary, (September 20-22, 2012) 221-225

M33=1

[17] Mirjana Filipovic, „Mathematical model of aerial robots as the basis for new research", Symposium Non-linear Dynamics with Multi and Interdisciplinary Applications (SNDMIA 2012), Belgrade, Serbian Scientific Society, Booklet of Abstracts, Symposium Venue at Mathematical Institute SANU (Eight Serbian Symposium in area of Non-linear Sciences), 01-05 October 2012.

M34=0.5

[18] Ljubinko Kevac, Mirjana Filipovic, „Precise trajectory tracking of robotic mechanism", Symposium Non-linear Dynamics with Multi and Interdisciplinary Applications (SNDMIA 2012), Belgrade, Serbian Scientific Society, Booklet of Abstracts, Symposium Venue at Mathematical Institute SANU (Eight Serbian Symposium in area of Non-linear Sciences) 01-05 October 2012.

M34=0.5

[19] Mirjana Filipovic, Ljubinko Kevac, Ana Djuric, „Future directions for implementation of aerial robot", 10th International Symposium on Electronics and Telecommunications, ISETC 2012, Tenth Edition, Politehnica University of Timisoara, Timisoara, Romania, November 15-16, 2012.

M33=1

[20] Mirjana Filipovic, Ana Djuric, Ljubinko Kevac, „The mathematical model of aerial robot in purpose increasing of its autonomy", 20th Telecommunications Forum TELFOR 2012, Telecommunications Society, Belgrade, Serbia, November 20-22, 2012.

M33=1

[21] Mirjana Filipovic, „The dynamic response of the Cable-suspended Parallel Robot hanged on the four points and powered by four motors", INFOTEH-JAHORINA, Bosnia and Herzegovina, Vol. 12, 20-22 March 2013, pp. 520-525.

M33=1

[22] Mirjana Filipovic, „Cable-suspended Parallel Robot hanged on the four points and powered by four motors – reference frame ", INFOTEH-JAHORINA, Bosnia and Herzegovina, Vol. 12, 20-22 March 2013, pp. 514-519.

M33=1

[23] Ljubinko Kevac, Ana Djuric, Mirjana Filipovic, Relation between Cable-suspended Parallel Robot and classic robotic structure, 4th International Congress of Serbian Society of Mechanics, Vrnjacka Banja, Serbia, 4-7 June 2013, pp. 955-960.

M33=1

[24] Ana Djuric, Mirjana Filipovic, Wen Chen, Visualization of the three critical spaces related to the 6-DOF machinery, 4th International Congress of Serbian Society of Mechanics, Vrnjacka Banja, Serbia, 4-7 June 2013, pp. 915-920.

M33=1

[25] Ana Djuric, Mirjana Filipovic, Ljubinko Kevac, „Graphical Representation of the Significant 6R KUKA Robots Spaces", 2013 SISY IEEE 11th 11th International Symposium on Intelligent Systems and Informatics, Subotica, Serbia (September 26-28, 2013, pp. 221-226.

M33=1

[36] Ana Djuric, Jill Urbanic, Mirjana Filipovic, Ljubinko Kevac, „Effective Work Region Visualization for Serial 6 DOF Robots", 5th International Conference on Changeable, Agile, Reconfigurable and Virtual Production (CARV 2013), 6th to 9th of October 2013, Munich, Germany 2013, pp. 207-212, DOI: 10.1007/978-3-319-02054-9_36.

M33=1

[27] Ana Djuric, Mirjana Filipovic, Ljubinko Kevac, Jill Urbanic, „Singularity Analysis for a 6 DOF Family of Robots", 5th International Conference on Changeable, Agile, Reconfigurable and Virtual Production (CARV 2013), 6th to 9th of October 2013, Munich, Germany 2013, pp. 201-206, DOI: 10.1007/978-3-319-02054-9_36.

M33=1

[28] Ljubinko Kevac, Aleksandar Rodic, Mirjana Filipovic, „Control of two-axis solar tracker for increasing the autonomy of mobile robot", Second International Conference on Renewable Electrical Power Sources, 16th to 18th of October 2013 in Belgrade, Serbia.

M33=1

[29] Mirjana Filipovic, „Comparative analysis of two types of Cable-suspended Parallel Robots, RSCPR system and RFCPR system", INFOTEH-JAHORINA, Bosnia and Herzegovina, Vol. 13, 19-21 March 2014, pp. 1057-1062, ISBN 978-99955-763-3-2.

[30] Mirjana Filipovic, „Relationship between external and internal forces for RSCPR and RFCPR systems", INFOTEH-JAHORINA, Bosnia and Herzegovina, Vol. 13, 19-21 March 2014, pp 1069-1074, ISBN 978-99955-763-3-2.

M33=1

[31] Mirjana Filipovic, Ana Djuric, , Ljubinko Kevac „Complexity of the elastic S-type Cable-suspended

Parallel Robot", Proceedings of 1st International Conference IcETRAN Conference, Vrnjacka Bamja, Serbia, June 2 – 5, 2014 , ROI3.3, pp. 1-6, ISBN 978-86-80509-70-9.

M33=1

[32] Ljubinko Kevac, Mirjana Filipovic, Ana Djuric „The comparison between the real and the scaled model of the CPR system", Proceedings of 1st International Conference IcETRAN Conference, Vrnjacka Bamja, Serbia, June 2 – 5, 2014 , ROI3.2, pp. 1-6, ISBN 978-86-80509-70-9 http://etran.etf.rs/...

M33=1

[33] Mirjana Filipovic, Ana Djuric, Ljubinko Kevac, „The choice of generalized coordinates for elastic robotic systems (industrial, humanoid and Cable-Suspended Parallel Robot**)** ", International Symposium on Stability, Vibration, and Control of Machines and Structures, SVCS2014, July 3–5, 2014, pp. 249-269, Belgrade, Serbia.

M33=1

[34] Ljubinko Kevac, Mirjana Filipovic, Ana Djuric, "The dynamic response analysis of a 2-DOF robotic mechanism for a complex trajectory", International Symposium on Stability, Vibration, and Control of Machines and Structures, SVCS2014, July 3–5, 2014, pp. 270-284, Belgrade, Serbia.

M33=1

[35] Ljubinko Kevac, Mirjana Filipovic, Ana Djuric, "The complex motion of Cable-suspended parallel robot under the influence of the disturbance", ENOC 2014, July 6 – 11, 2014, Vienna, Austria.

M33=1

[36] Mirjana Filipovic, Ana Djuric, Ljubinko Kevac, Zeljko Despotovic, „ The elastic F-type Cable-suspended Parallel Robot in the service of parents", International Workshop and Summer School on Medical and Service Robotics, July 10 – 12 2014, EPFL Lausanne, Switzerland.

M33=1

[37] Mirjana Filipovic, Ljubinko Kevac, Ana Djuric, Milica Vujovic „The importance of the development and application areas of different structures of Cable-suspended Parallel Robot – CPR systems," Proceedings of 2st International Conference IcETRAN Conference, Silver Lake, Serbia, June 8 – 11, 2015 , ROI3.6.

M33=1

[38] Ljubinko Kevac, Mirjana Filipovic, „ANALYSIS OF THE PERFORMANCE OF CPR SYSTEM WITH CHANGEABLE MASSES OF WINCHES AND ROPES" Proceedings of 5th International Congress of Serbian Society of Mechanics, Arandjelovac, Serbia, June 15-17, 2015, M2b.

M33=1

Predavanje po pozivu na internacionalnom skupu

[1] Mirjana Filipovic, „Construction type Cable-Suspended Parallel Robot, CPR system conditions the complexity of its mathematical model", International Symposium on Stability, Vibration, and Control of Machines and Structures, SVCS2014, July 3–5, 2014, 33-56, Belgrade, Serbia.

M31=3

Radovi u nacionalnim časopisima

[1] Mirjana Filipovic, Veljko Potkonjak and Miomir Vukobratovic: „Elasticity in Humanoid Robotics", Scientific – Technical Review, Military Technical Institute, Belgrade, 2007, Volume 1, Pages 24-33.

M52=1.5

[2] Mirjana Filipovic „Dynamic of Biped Movement on a Mobile Platform in the Presence Elasticity Elements", Scientific – Technical Review, Military Technical Institute, Belgrade, 2008, Volume 1, Pages 15-24.

M52=1.5

[3] Mirjana Filipovic „New View of the Euler-Bernoulli Equation", Scientific – Technical Review, Military Technical Institute, Belgrade, 2009, Volume 1, Pages 41-51.

M52=1.5

[4] Mirjana Filipovic, Vladimir Kokotovic „ Contribution to New Interpretation of the Euler-Bernoulli Equation", FACTA UNIVERSITATIS Series Mechanics, Automatic Control and Robotics, 2009, Volume 8, No. 1, pp. 137-147.

M51=2

[5] Mirjana Filipovic „Analogue between New Formulation of Euler-Bernoulli Equation and Algorithm of Forming Mathematical Models of Robot Motion", Scientific – Technical Review, Military Technical Institute, Belgrade, 2010, Vol. LX, No. 1, pp. 19-29.

M52=1.5

[6] Mirjana Filipovic „New Aspects on Formulating the Euler-Bernoulli Equation", TECHNIQUE, Association of Mechanical and Electrical Engineers and Technicians of Serbia, Mechanical engineering 59 (2010) 4, pp. 1-8.

M53=1

[7] Mirjana Filipovic „New access in the synthesis and analysis of movement of elastic link in the frame of robotics configuration", IMK – 14, Research and Development, Krusevac, Serbia, XVI, No. 37, 4/2010, pp. 7-12.(in Serbian)

M51=2

[8] Mirjana Filipovic, „Differences between source and new form of the Euler-Bernoulli equation as well as its solution", FACTA UNIVERSITATIS Series: Physics, Chemistry and Technology, Nis, ISSN 0354 – 4656, Vol. 8, No 1, 2010, pp. 45-56.

M51=2

[9] Mirjana Filipovic, „The Importance of Modelling an Aerial Robotic Camera", Scientific – Technical Review, Military Technical Institute, Belgrade, ISSN 1820-0206, 2012, Vol. 62, No. 1, pp. 28-37.

M52=1.5

[10] Mirjana Filipovic, Ana Djuric, Ljubinko Kevac, „Influence of the construction type of Cable-suspended Parallel Robot on its kinematic and dynamic model", Scientific – Technical Review, Military Technical Institute, Belgrade, ISSN 1820-0206, 2013, Vol. 63, No. 4.

M52=1.5

11] Mirjana Filipovic, Ana Djuric, Ljubinko Kevac, „The methodology for developing the kinematic model of selected CPR-A system as a necessity for the development of a dynamic model", Journal of Applied Engineering Science, 2013, Paper number: 11(2013)4, 264, pp.191-200, doi:10.5937/jaes11-4581.

M51=2

Radovi na nacionalnim konferencijama

[1] Mirjana Filipovic, „Synthesis of robot motion control using Kalman filter as an estimator of unknown mass", Proceedings of the Yugoslav ETRAN Conference, Zlatibor , Yugoslavia, June 1995, pp. 264-267.(in Serbian)

M63=0.5

[2] Mirjana Filipovic, „Influence of the robot dynamic parameters variations on the trajectory tracking accuracy", Proceedings of the Yugoslav ETRAN Conference, Budva, Yugoslavia, June 1996, pp. 247-250.(in Serbian)

M63=0.5

[3] Mirjana Filipovic, „Model errors of trajectory tracking for dynamical control law ", Proceedings of the 42. Yugoslav ETRAN Conference, Vrnjačka Banja, Yugoslavia, June 1998, pp. 301-304.(in Serbian)

M63=0.5

[4] Mirjana Filipovic, „Robotic systems in contact tasks of cutting process workpiece with spacious dynamic environment model", Proceedings of the 43. Yugoslav ETRAN Conference, Zlatibor, Yugoslavia, June 1999.(in Serbian)

M63=0.5

[5] Mirjana Filipovic, „Extended mathematical model of dynamic environment in contact robotic tasks", Proceedings of the 44. Yugoslav ETRAN Conference, Sokobanja, Yugoslavia, June 2000, pp. 289-292.(in Serbian)

M63=0.5

[6] Mirjana Filipovic, „Introduction of second mode of elastic robot segment into an robot system modelling and analysis", Proceedings of the 47. ETRAN Conference, Herceg-Novi, Serbia & Montenegro, June 2003, Vol.4, pp. 367-370.(in Serbian)

M63=0.5

[7] Aleksandar Rodic, Miomir Vukobratovic, Mirjana Filipovic, Duško Katic, "Modellling and Simulation of Locomotion Mechanisms of Anthropomorphic Structure Using Contemporary software tools", Proceedings of the 47. ETRAN Conference, Herceg-Novi, Serbia & Montenegro, June 2003, Vol.4, pp.347-350.

M63=0.5

[8] Mirjana Filipovic, „Structure of elastic robotic systems", Proceedings of the 6th DQM-2003 Dependability and Quality Management, Belgrade, Serbia & Montenegro, June 2003, pp. 809-814.(in Serbian)

M63=0.5

[9] Mirjana Filipovic, D.Katic, A.Rodic, „An Analysis of Movement of the Flexible Robotic System in Horizontal Plane", Proceedings of the 7th DQM-2004 Dependability and Quality Management, Belgrade, Serbia & Montenegro, June 2004.

[10] Mirjana Filipovic, Aleksandar Rodic i Duško Katic, "An Analysis of Movement of Elastic Robotic System under the influence of environment dynamics", Proceedings of 29. HIPNEF 2004, Vranjačka Banja, Serbia & Montenegro, May 2004.pp.385-390.

M63=0.5

[11] Mirjana Filipovic, Milovan Zivanovic, „Humanoid robotic system with possibility of the joint type selection: flexible or rigid", Proceedings of 48. Serbian Conference for ETRAN, Čačak, Serbia and Montenegro, pp. 253-256, 6-10 Jun 2004.(in Serbian)

M63=0.5

[12] Miloš Zivanovic, Milovan Zivanovic, Mirjana Filipovic, „Proposal error tracking law with respect velocities or force of mechanical system", Proceedings of 48. Serbian Conference for ETRAN, Čačak, Serbia and Montenegro, pp. 281-284, 6-10 Jun 2004.(in Serbian)

M63=0.5

[13] Mirjana Filipovic, Milovan Zivanovic, „Coupling between Platform and Biped", 49. Serbian Conference for ETRAN, Belgrade, Serbia and Montenegro, 5-10 June 2005, Vol. IV, pp. 349-352.

M63=0.5

[14] Aleksandar Rodic, Duško Katic, Mirjana Filipovic, „Control of Dynamic Balance and Trunk Posture of Humanoid Robots in Service Tasks", 49. Serbian Conference for ETRAN, Belgrade, Serbia and Montenegro, 5-10 June 2005, Vol. IV, pp. 345-348.

M63=0.5

[15] Mirjana Filipovic: „An analysis of movement of the flexible robotic system in „horizontal plane", 30. Congress with international participation, HIPNEF 2006, Vrnjacka Banja, Serbia and Montenegro, 24-26 May 2006, pp. 357-362.

M63=0.5

[16] Mirjana Filipovic: „The humanoid robotic systems with elastic and stiff elements", Proceedings of 50. Serbian Conference for ETRAN, Belgrade, Serbia and Montenegro, 6-8 June 2006, Vol. IV.

M63=0.5

[17] Mirjana Filipovic, Veljko Potkonjak, Miomir Vukobratovic: „Elastic humanoid robotic systems walking on an mobile platform", Proceedings of 51. Serbian Conference for ETRAN, Herceg Novi-Igalo, June 2007, RO1.1, 4-8.

M63=0.5

[18] Mirjana Filipovic, „Expansion of Euler-Bernoulli equation and its application", Proceedings of 52. Serbian Conference for ETRAN, Palic, June 2008, RO1.1, 8-12.

M63=0.5

[19] Mirjana Filipovic, „APPLICATION OF THE EULER BERNOULLI EQUATION", 31. Congress with international participation, HIPNEF 2008, Vrnjačka Banja, Srbija, 15-17. October 2008, pp. 399-404.

M63=0.5

[20] Mirjana Filipovic, „New form of Euler-Bernoulli equation and mathematical model of motor", Proceedings of 53. Serbian Conference for ETRAN, Vrnjačka Banja, June 2009, RO1.1, 15 -18.

M63=0.5

[21] Mirjana Filipovic, „GENERAL FORM OF EULER-BERNOULLI EQUATION AND MATEMATICAL MODEL OF MOTOR", 32. Congress with international participation, HIPNEF 2009, Vrnjačka Banja, Serbia, 15-17. October 2009, pp. 287-292.

M63=0.5

[22] Mirjana Filipovic, „Procedure of Definding Euler-Bernoulli Equation", Proceedings of 54. Serbian Conference for ETRAN, Donji Milanovac, Serbia, June 7–11, 2010.

M63=0.5

[23] Mirjana Filipovic, Svemir Popic, Miloš Jovanovic i Aleksandar Rodic: „Workspace Observation System", 24. International Congress on Process Industry, PROCESING 2011, Fruška Gora 01-03, Jun 2011.

M63=0.5

[24] Mirjana Filipovic, „Procedure of Definding Euler-Bernoulli Equation", Proceedings of 55. Serbian Conference for ETRAN, Banja Vrucica (Teslic), 6 - 9. Jun 2011.

M63=0.5

[25] Svemir Popic, Aleksandar Rodic, Mirjana Filipovic, „Robotized aerial-cable visual system for 3D surveillance and monitoring of scenic and protected areas", Proceedings of 55. Serbian Conference for ETRAN, Banja Vrucica (Teslic), 6 - 9. Jun 2011. RO2.4-1-4.

M63=0.5

[26] Ljubinko Kevac, Mirjana Filipovic, „Application of FUZZY logic controller to the control of robotic mechanism", Proceedings of 56th ETRAN Conference, Zlatibor, Society for Electronics, Telecommunications, Computers, Automatic Control and Nuclear Engineering, June 11-14, 2012, RO1.7.

M63=0.5

[27] Mirjana Filipovic, „Analysis and synthesis of aerial robot", Proceedings of 56th ETRAN Conference, Zlatibor, Society for Electronics, Telecommunications, Computers, Automatic Control and Nuclear Engineering, June 11-14, 2012, RO1.7.

M63=0.5

[28] Mirjana Filipovic, Ljubinko Kevac, „The Importance of procedure of form a mathematical model of aerial robot," HIPNEM 2012, KGH, Belgrade, October 18 2012, ISBN 978-86-81505-64-9.

M63=0.5

[29] Ljubinko Kevac, Mirjana Filipovic, „Application of fuzzy logic controller to the control of robotic mechanism with 6 DOF," HIPNEM 2012, KGH, Belgrade, October 18 2012.

M63=0.5

[30] Mirjana Filipovic, Ljubinko Kevac, Ana Djuric, „Synthesis and analysis of two configurations of

Cable-suspended Parallel Robot", Proceedings of 57th ETRAN Conference, Zlatibor, Serbia, June 3 – 6, 2013, RO2.5.

M63=0.5

[31] Ljubinko Kevac, Mirjana Filipovic, Ana Djuric, „Analysis of influence of the motor choice on trajectory tracking of Cable-suspended Parallel Robot", Proceedings of 57th ETRAN Conference, Zlatibor, Serbia, June 3 – 6, 2013, RO2.5.

M63=0.5

Tehnička rešenja - Programski paketi

[1] Mirjana Filipovic, Program system, FLEXI: „ Humanoid robotic system with rigid and elastic elements that walks on immobile/mobile platform", 2007.
http://www.pupin.rs/RnDProfile/filipovic-pub.html#ref7

M85=2

[2] Mirjana Filipovic, Program system, EBTLOM „Euler-Bernoulli Theory Link One Mode", 2009.
http://www.pupin.rs/RnDProfile/filipovic-pub.html#ref7

M85=2

[3] Mirjana Filipovic, Program system, TMODES „New form of the Euler-Bernoulli equation in presence of high modes (Two MODES)", 2010.
http://www.pupin.rs/RnDProfile/filipovic-pub.html#ref7

M85=2

[4] Mirjana Filipovic, Program system, TIPEX „Robotic Example in Vertical Plane with Elastic Gear and Flexible Link in the Presence of the Second Mode and Dynamic External Force", 2011.
http://www.pupin.rs/RnDProfile/filipovic-pub.html#ref7

M85=2

[5] Mirjana Filipovic, Program system, VERSPACE „The spatial movement of the vertical elastic links", 2011.
http://www.pupin.rs/RnDProfile/filipovic-pub.html#ref7

M85=2

[6] Mirjana Filipovic, Program system, AIRCAMA „ Cable Suspended Parallel Robot, CPR-A", 2012.
http://www.pupin.rs/RnDProfile/filipovic-pub.html#ref7

M85=2

[7] Mirjana Filipovic, Program system, AIRCAMB „ Cable Suspended Parallel Robot, CPR-B", 2012.
http://www.pupin.rs/RnDProfile/filipovic-pub.html#ref7

M85=2

[8] Mirjana Filipovic, Program system, AIRCAMC „ Cable Suspended Parallel Robot, CPR-C", 2012.
http://www.pupin.rs/RnDProfile/filipovic-pub.html#ref7

M85=2

[9] Mirjana Filipovic, Program system, AIRCAMD „ Cable Suspended Parallel Robot, CPR-D", 2012.
http://www.pupin.rs/RnDProfile/filipovic-pub.html#ref7

M85=2

[10] Mirjana Filipovic, Program system, ORVER, for RFCPR system, Rigid ropes F-type Cable-suspended Parallel Robot, 2013.
http://www.pupin.rs/RnDProfile/filipovic-pub.html#ref7

M85=2

[11] Mirjana Filipovic, Program system, ORIGI, for RSCPR system, Rigid ropes S-type Cable-suspended Parallel Robot, 2013. http://www.pupin.rs/RnDProfile/filipovic-pub.html#ref7

M85=2

[12] Mirjana Filipovic, Program system, **ORFLEX,** „elastic ropes S-type Cable-suspended Parallel Robot, **eSCPR**, with one mode", 2014. http://static.pupin.rs/2010/07/ORFLEX_Za_Saj_2014_MF.pdf

M85=2

[13] Mirjana Filipovic, Program system, **OGIFLEX**, „elastic ropes F-type Cable-suspended Parallel Robot, **eFCPR,** with one mode", 2014. http://static.pupin.rs/2010/07/OGIFLEX_Za_Saj_2014_MF.pdf

M85=2

[14] Mirjana Filipovic, Program system, **OGTOM,** „elastic ropes S-type Cable-suspended Parallel Robot, **eSCPR,** with two modes", 2014. http://static.pupin.rs/2010/07/OGTOM_Za_Saj_2014_MF.pdf

M85=2

[15] Mirja na Filipovic, Program system, **OVTOM,** „elastic ropes F-type Cable-suspended Parallel Robot, **eFCPR,** with two modes", 2014. http://static.pupin.rs/2010/07/OVTOM_Za_Saj_2014_MF.pdf

M85=2

Patenti

[1] Patent No. A-205/02/1, Analysis and Synthesis of Flexible Robotic Systems.

M92=8

[2] Patent No. A-117/04/1, Modelling of Elastic Robotic Systems.

M92=8

Annex 2 : Mirjana Filipovic: List of projects: Member of research team and/or project manager

Israživačko razvojni projekti

- The development of cells and systems of high automated and robotized capacities for packing in food industry, 1998-2000, a team member.
- Use of IR heaters within ceramic product drying process, 2001.
- Simulation and Experimental Platform for Design and Control of Service Robots, Ministry of Science and Technology of Republic of Serbia, 2001-2004
- Dynamics and Control of High Performance Humanoid Robots – Theory and Application, Ministry of Science and Technology of Republic of Serbia, 2005-2007
- Development of High Performance Humanoid Robots, Innovation Project, Ministry of Science and Technology of Republic of Serbia, 2006-2007
- Humanoid Robotic Systems – Theory and Application, Ministry of Science and Technology of Republic of Serbia, 2008-2010
- Ambient Intelligent Service Robots of Anthropomorphic Characteristics, Ministry of Education and Science of Republic of Serbia TR 35003, 2011-2015
- Creative Alliance in Robotics Research and Education Focused on Medical and Service Robotics (CARE-Robotics), IZ74Z0_137361/1, Swiss National Science Foundation (SNSF), Scientific Cooperation between Eastern Europe and Switzerland (SCOPES program), 2011-2014