

# National Institute of Technology, Tiruchirappalli: Performa for CV of Faculty/ Staff Members

## Curriculum Vitae



Brief Profile: 1-2 paragraphs (not exceeding 500 words)

Shivarajani Nagarajan is Assistant Professor at the Department of Mathematics at the National Institute of Technology, Tiruchirappalli, Tamil Nadu. She did her Ph.D. in constructing numerical methods for singularly perturbed delay differential equations under the guidance of Dr. Valarmathi Sigamani. She secured the first rank in her under graduate and master's programme at Bharathidasan University, Tamil Nadu. During her Ph.D. studies, she received the prestigious INSPIRE Fellowship from the Department of Science & Technology, Government of India. Her research interests include differential equations arising in mathematical biology, and currently, she is working on systems of singularly perturbed differential equations characterised by two singular perturbation parameters.

1. Name Dr.N.Shivarajani
2. Designation: Assistant Professor – Grade II
3. Office Address: No.214, Department of Mathematics, Lyceum Building, NITT
4. Telephone (Direct) (Optional):  
Telephone : Extn (Optional):  
Mobile (Optional):
5. Email (Primary): [ranjani@nitt.edu](mailto:ranjani@nitt.edu) Email (Secondary)  
:shivarajaninagarajan@gmail.com
6. Field(s) of Specialization: Singular perturbation problems, Delay differential equations, Numerical analysis of differential equations

### 7. Employment Profile

| Job Title                         | Employer   | From       | To         |
|-----------------------------------|--|------------|------------|
| Assistant Professor               | Bishop Heber College,<br>Tiruchirappalli             | 30-11-2015 | 23-04-2020 |
| Assistant Professor –<br>Grade II | National Institute of Technology,<br>Tiruchirappalli | 06-05-2021 | Till date  |
|                                   |  |            |            |
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### 8. Academic Qualifications (From Highest Degree to High School):

| Examination      | Board / University                              | Year | Division/ Grade              | Subjects  |
|------------------|---|------|------------------------------|---|
| Ph.D             | Bharathidasan University – Bishop Heber College | 2016 | NA                           | Mathematics – Singularly perturbed delay differential equations |
| M.Sc             | Bharathidasan University                        | 2012 | University First             | Mathematics   |
| B.Sc             | Bharathidasan University                        | 2010 | University First             | Mathematics   |
| Higher Secondary | State Board                                     | 2007 | First class with Distinction | Biology, Physics, Chemistry, Mathematics                        |
| High school      | Matriculation                                   | 2005 | First class with Distinction | Biology, Physics, Chemistry, Mathematics                        |

### 9. Academic/Administrative Responsibilities within the University

| Position          | Faculty/Department/Centre/Institution                                    | From       | To        |
|-------------------|--|------------|-----------|
| Member            | Ranking Analytics Committee, NITT  | 29-10-2021 | Till date |
| Data Co-ordinator | Department of Mathematics  | July 2022  | Till date |
| Member            | Department Project Evaluation Committee, Department of Mathematics, NITT | 18-07-2020 | Till date |
| Member            | Placement Cell, Department of Mathematics, NITT                          | 18-07-2020 | Till date |
| Member            | Students' Grievance cell, Department of Mathematics, NITT                | 18-07-2020 | Till date |

### 10. Academic/Administrative Responsibilities outside the University

| Position | Institution | From | To |
|----------|-------------|------|----|
|          |             |      |    |
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|          |             |      |    |

### 11. Awards, Associateships etc.

| Year of Award | Name of the Award | Awarding Organization |
|---------------|-------------------|-----------------------|
|               |                   |                       |

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### 12. Fellowships

| Year of Award | Name of the Fellowship | Awarding Organization | From (Month/Year) | To (Month/Year) |
|---------------|------------------------|-----------------------|-------------------|-----------------|
| 2013          | INSPIRE                | DST, Govt. of India   | 2013              | 2015            |
| 2010          | PG Merit Scholarship   | UGC, Govt. of India   | 2010              | 2012            |
|               |                        |                       |                   |                 |

### 13. Details of Academic Work

(i) Curriculum Development

(ii) Courses taught at Postgraduate and Undergraduate levels

- Partial Differential Equations
- Complex Analysis and Differential Equations
- Matrices and Calculus
- Linear Algebra and Calculus

(iii) Projects guided at Postgraduate level

- A study on brain tumor detection using convolutional neural network
- A study on group actions and its applications

(iv) Other contribution(s)

### 14. Details of Major R&D Projects

| Title of Project | Funding Agency | Duration |    | Status             |
|------------------|----------------|----------|----|--------------------|
|                  |                | From     | To | Ongoing/ Completed |
|                  |                |          |    |                    |
|                  |                |          |    |                    |
|                  |                |          |    |                    |

### 15. Number of PhDs guided

| Name of the PhD Scholar | Title of PhD Thesis | Role(Supervisor/ Co-Supervisor) | Year of Award |
|-------------------------|---------------------|---------------------------------|---------------|
|                         |                     |                                 |               |
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16. Participation in Workshops/ Symposia/ Conferences/ Colloquia /Seminars/ Schools etc. (mentioning the role)

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| Date (s) | Title of Activity | Level of Event (International/ National/ Local) | Role (Participant/ Speaker/ Chairperson, Paper presenter, Any other) | Event Organized by | Venue |
|----------|-------------------|---|--|--------------------|-------|
|          |                   |   |  |                    |       |
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|          |                   |   |  |                    |       |

**17. Workshops/ Symposia/ Conferences/ Colloquia/Seminars Organized (as Chairman/ Organizing Secretary/ Convenor / Co-Convenor)**

| Title of Activity  | Level of Event (International/ National/ Local) | Date (s)  | Role        | Venue |
|--|---|---|-------------|-------|
| National Workshop on Mathematical sciences for CSIR and GATE Aspirants | National  | 17 <sup>th</sup> -21 <sup>st</sup> January,2022 | Co-convenor | NITT  |
| Five days national workshop on MATLAB and LATEX                        | National  | 4 <sup>th</sup> -8 <sup>th</sup> April, 2022    | Co-convenor | NITT  |
|  |   |   |             |       |

**18. Invited Talks delivered**

| Topic  | Date        | Inviting Organization  |
|--|-------------|--|
| Integration Of Software Packages And Tool In Mathematics Teaching And Learning | 23/09/2021. | Three – Day Online Faculty Development Programme on “SCOPE FOR SKILL DEVELOPMENT IN SCIENCE PROGRAMMES” Under UGC PARAMARSH Scheme, Ayya Nadar Janaki Ammal College (Autonomous), Sivakasi |
| An introduction to singular perturbation problems and its applications         | 12.10.2021  | National Webinar on Recent trends in Mathematics, E.S. Arts and Science College, Villupuram,   |
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**19. Membership of Learned Societies**

| Type of Membership (Ordinary | Organization | Membership No. with |
|------------------------------|--------------|---------------------|
|                              |              |                     |

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| Member/ Honorary Member / Life Member ) |  | date |
|---|--|------|
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20. Academic Foreign Visits

| Country | Duration of Visit | Programme |
|---------|-------------------|-----------|
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|         |                   |           |

21. Publications

(A) Refereed Research Journals:

| Author(s)  | Title of Paper  | Journal                       | Volume (No.) | Page numbers | Year | Impact Factor of the Journal (Optional) |
|--|---|-------------------------------|--------------|--------------|------|---|
| Shivaranjani Nagarajan                           | A parameter robust fitted mesh finite difference method for a system of two reaction-convection-diffusion equations                               | Applied Numerical Mathematics | 179          | 87-104       | 2022 | 2.994                                   |
| Shivaranjani, N., Miller, J.J.H. and Valarmathi, | A parameter-uniform almost first order convergent numerical method for a semi-linear system of singularly perturbed delay differential equations, | BIOMATH                       | 3(2)         | 1-8          | 2014 |   |

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(B) Conferences/Workshops/Symposia Proceedings

| Author(s)  | Title of Abstract/<br>Paper  | Title of the Proceedings  | Page numbers | Conference Theme | Venue                                     | Year |
|--|--|---|--------------|------------------|---|------|
| Shivaranjani, N., Ramanujam, N., Miller, J.J.H. and Valarmathi, S, | A parameter-uniform first order convergent numerical method for a system of singularly perturbed delay differential equations, A.R.Ansari (ed.), | Advances in Applied Mathematics, Springer Proceedings in Mathematics and Statistics | 127-138      |                  | Gulf university of Science and Technology | 2014 |
| Manikandan M., Shivaranjani, N., Miller, J.J.H. and Valarmathi, S, | A parameter uniform numerical method for a singularly perturbed delay differential equation  | Advances in Applied Mathematics, Springer Proceedings in Mathematics and Statistics | 71-88        |                  | Gulf university of Science and Technology | 2014 |
| Shivaranjani Nagarajan, J.J.H.Miller and Valarmathi Sigamani,      | A parameter uniform numerical method for an initial value problem for a system of SPDDES with discontinuous                                      | Springer Proceedings in Mathematics and Statistics                                  | 135-150      |                  | Bishop Heber College, Tiruchirappalli     | 2016 |

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|  | source terms |  |  |  |  |  |
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(C) Books & Monographs

| Author(s) | Title of Book/Monograph | Name of Publishers | Year of Publication | ISSN/ISBN Number |
|-----------|-------------------------|--------------------|---------------------|------------------|
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|           |                         |                    |                     |                  |