

# Experience of a successful applicant

Ivan Tomac

Faculty of Mechanical Engineering  
University of Ljubljana

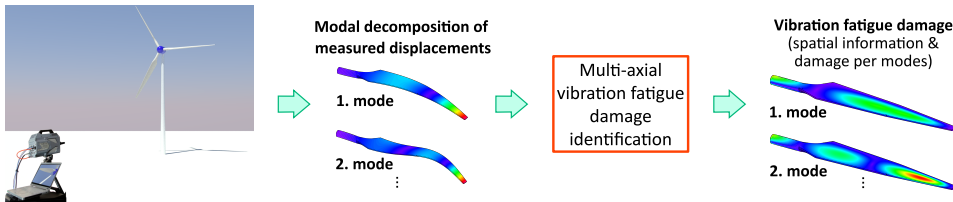
MSCA PF MASTERCLASS 2022  
May 25-26, 2022



Univerza v Ljubljani  
Fakulteta *za strojništvo*



- ▶ Scientific area: ENGINEERING
- ▶ Project acronym: **NOSTRADAMUS** (Grant ID: 101027829)
- ▶ Project title:  
NON-contact STRuctural DAMAge for fUTURE Safety and lightweight

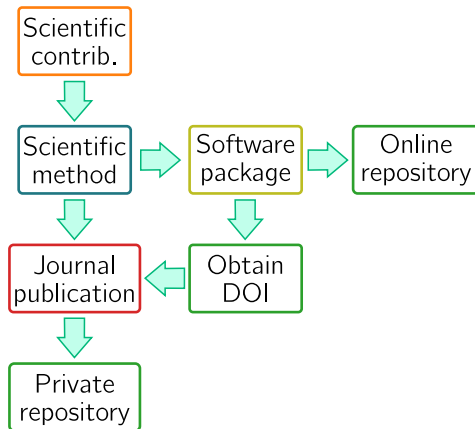


- ▶ The main goal of the project is to deliver advanced method for close to real time identification of vibration fatigue, using the high-speed camera.

## About the project (2)

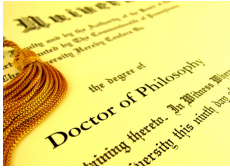
- ▶ The project is multidisciplinary:
  - ▶ Mechanical engineering: Structural dynamics and Vibration fatigue
  - ▶ Computer science: deliverable is the software package
- ▶ Multi sectorial:
  - ▶ secondment to the industrial SME partner
  - ▶ wind energy sector via collaboration with the established researcher in the field
- ▶ Integrate into HorizonEU
- ▶ Open science approach
- ▶ Beneficial two way of transfer knowledge
- ▶ My field: Identification of modal parameters in structures

- ▶ Systematic approach
- ▶ Data management plan
- ▶ Example on journal publication:
  - ▶ Green OA – access to the research
  - ▶ Zenodoo – DOI
  - ▶ GitHub – Contribution by others



# Prior to the NOSTRADAMUS

- ▶ Scientific contribution from PhD



- ▶ Present work at the conference



- ▶ Continued working on the topic via ERASMUS+ staff exchange



- ▶ Started project proposal



## Path of the NOSTRADAMUS (1)

[illegible][illegible]

Call: **H2020**

- ▶ Score: 8
- ▶ Strength

*The rec*

MSCA-IF-201  
0.4%  
:  
researcher has the

Call: **H2020-MSCA-IF-2018**

► Score: 80.4%

- ▶ Strength:

*The researcher has the capacity to reach a position of professional maturity. The position reached so far is already quite mature with a relatively strong academic research as well as a teaching and track record.*

[illegible][illegible]

The research  
profession  
already  
research

quite mature with  
as well as a tea

the position reached with a relatively stable heading and track

ed so far is  
strong academic  
record.

## Path of the NOSTRADAMUS (2)

Selected weaknesses for each category:

1. *The transfer of the researcher's expertise back to the host is insufficiently described, in particular missing details on the transfer mechanism to be implemented by the researcher.*
2. *Intellectual Property ownership is not sufficiently considered, in particular since both an academic and an industrial partner are involved in the project.*
3. *The conflict resolution procedures as well as the collaboration activities between the actors are not clearly addressed.*

## Path of the NOSTRADAMUS (3)

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It is not clear whether the  $\beta$  values are sensitive to the choice of the  $\alpha$  value. In general, the  $\beta$  values are not sensitive to the choice of the  $\alpha$  value. However, the  $\beta$  values are sensitive to the choice of the  $\alpha$  value in some cases. For example, the  $\beta$  values are sensitive to the choice of the  $\alpha$  value in the case of the  $\alpha = 0.5$  and  $\alpha = 1.0$  values. In this case, the  $\beta$  values are sensitive to the choice of the  $\alpha$  value. However, the  $\beta$  values are not sensitive to the choice of the  $\alpha$  value in the case of the  $\alpha = 0.1$  and  $\alpha = 0.2$  values. In this case, the  $\beta$  values are not sensitive to the choice of the  $\alpha$  value.

**THE SWARMING EFFECT** of the proposed research is to develop a new, more methodical chain in building construction management. The research will help the employer build the most successful program in the world. The research will help the employer build the most successful program in the world. The research will help the employer build the most successful program in the world.

### THE CHALLENGE OF THE FUTURE:



The authors would like to thank the following for their contribution to this work: the National Science Foundation (NSF) Grant IRI-9533096, the Office of Naval Research (ONR) Grant N00014-95-1-0600, the Department of Defense (DoD) Grant D31126-95-1-0000, and the Department of Energy (DoE) Grant DE-AC05-94OR21400. The authors would also like to thank the following for their contribution to this work: the National Science Foundation (NSF) Grant IRI-9533096, the Office of Naval Research (ONR) Grant N00014-95-1-0600, the Department of Defense (DoD) Grant D31126-95-1-0000, and the Department of Energy (DoE) Grant DE-AC05-94OR21400.

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(1980, 1983, and 1984). The second part of the paper is based on local and international case study materials on

**12. Quality of the proposed research is top-notch**  
**Observations:** *see above results*

## Page 10-1 Section 2 - Impact

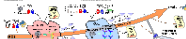
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[illegible]

1997). Development of the FCBW is based on 18

[illegible][illegible]

**Training objectives (TObj)** ... workshop for researchers "from lab to market" sites

111. Training for the spinal method is structured differently. I will have the latest theoretical and

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transverse stress, mode shapes, buckling frequencies and... and that it is documented using the following. The use

developed under the rubric of the National Center for the Advancement of the Informal Sector (NCAIS), a non-profit organization that has been instrumental in the development of the informal sector in the United States. The NCAIS has been instrumental in the development of the informal sector in the United States. The NCAIS has been instrumental in the development of the informal sector in the United States.

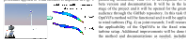


Figure 14 shows the cycle structure in the sequence domain, in comparison to theoretical and experimental data. The theoretical part is a plot of the cycle structure in the sequence domain, in comparison to theoretical and experimental data. The theoretical part is a plot of the cycle structure in the sequence domain, in comparison to theoretical and experimental data.

**W5: Development of the open source package:** Tasks 1.3 and 1.4 comprise T06. The animals will be assessed according to the specific outcome needs and a

will be hands-on training. Seminars for rule 3.1 (the use

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action taken within NPT will ensure that the developed world will be ready for a world conference. This means that

Figure 1. The number of genes identified by each method for the 1000 subjects. The number of genes identified by each method for the 1000 subjects is shown in the bar chart. The methods are: (a) active vibration control, (b) random noise, (c) random noise, (d) random noise, (e) random noise, (f) random noise, (g) random noise, (h) random noise, (i) random noise, (j) random noise. The legend indicates the number of genes identified by each method: (a) active vibration control, (b) random noise, (c) random noise, (d) random noise, (e) random noise, (f) random noise, (g) random noise, (h) random noise, (i) random noise, (j) random noise.

Figure 1 shows that the

Call: **H2020-MSCA-IF-2019**

► Score: 78%

- ▶ Weakness:

*The proposal does not give enough evidence in the track record of the researcher to judge how the researcher's existing scientific experience will contribute to the development as an independent researcher during the fellowship.*



## Path of the NOSTRADAMUS (4)

Selected strengths:

1. *Training objectives are outlined and are relevant for both the host and the researcher. The clearly prepared two way knowledge transfer is fully in line with the clearly articulated research programme.*
2. *A well-structured public engagement strategy is presented, including effective means of communication.*

Selected weaknesses:

1. *The concrete planning for exploitation and communication activities is not adequately presented in the Gantt chart. Majority of the activities in the Gantt are the scientific dissemination.*
2. *The management structure and procedures are inappropriately described: mainly only the researcher and the supervisor are involved in the management.*

## Path of the NOSTRADAMUS (5)

#### DISCUSSION

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LI Quality and credibility of the source/information, project, level of novelty, appropriate consideration of interdisciplinarity, and gender aspects

[illegible]

The scientific method to be developed will be called *the scientific method for the identification of large displacement (P3P-IDA)*. It will consist of a real-time identification of large-displacement with high spatial density as depicted in Fig. 1 (see also Bensen, 1997). It will be based on the use of a high-resolution displacement measurement using a high-resolution laser and vibration isolation identification using the method of Decomposition of Relative Non-Resonant Eigenmodes (DRENRE) (Bensen, 1997). DRENRE requires significant scientific, especially theoretical, research which will result in further extension of both the P3P-IDA and the DRENRE.

The developed method will also be tested with an industrial product such as a *seismometer with the best of its kind*. Here, too, a *seismometer with the best of its kind* is required. The *seismometer with the best of its kind* is a real product, supported by EN, French Government, and the EC. These high-level-of-art publications are planned and the Open-IDA method will be publicly available. The Open-IDA method will be publicly available and the Open-IDA method will be publicly available.

One of EU institutions for the following framework programme is a significant. Its importance is indicated

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within the project (see 3.2.3). Thus, I will ensure principles of creating high quality scientific publications. The project will have a strong impact on my network. I shall present my work at regional scientific conferences (C1 and C2) and establish a collaboration with post-

Papers will be published using the green open access practice. This means that the final accepted/manuscript version of papers will be published online in the Creative Commons Attribution webpage; the webpage of the Journal – 13, April 2012, see 3.1 and

• *International Conference on State and Vibration Engineering (ISVEE) 2023*, Fig. 1: C1, broader scientific audience and also has impact on industry.

• *International Conference on Structural Engineering Dynamics (ICSESD) 2024*, Fig. 1: C2, more focused.

## PART II: SECTION I - DISPACE

**3.1 Enriching the future career prospects of the researcher after the fellowship**

I have designed *Satrah* as a means to foster my research-related and non-research knowledge and skills, leading to improved employability, via the Europe-wide

and mobility. Expected impacts of Neotamias on my future career including time scales are shown in Table 1.

I will develop a project website (75%) and I will maintain it continuously during the project. On the website of the host's lab will be a link to it. The activities that will remain after the project, such as environmental publications, the ones submitted during the project and similar will be updated. Dissemination activities are shown in Table 2.

**Explication of the results.** If research results presented in the course of my employment contract with the host institution (UCL) will be owned by the UK, Ownership and protection of research results are determined by national legislation at UCL. The latter will try to commercially exploit the research results of this project. I accept agreement, acknowledging joint ownership of the results of the project.

[illegible]

## NOTE

counts made, shall be considered between 0.5

US EPA. Rules in the international agreement will follow guidelines in EPA's (USEPA) program. The agreement will be a model for other countries in the design process of the future product and will help them to increase the global competitiveness of the European car industry. The results are clear which will be the first step in the development of a new car under another name (GEM) (GEM). Through joint venture with US-EPA, the availability will be increased to the products of new business models.

**3.2. Work plan and effectiveness of the work plan**  
The work plan is divided into three work packages, each producing deliverables (Ds). Each WP is divided into specific tasks (Ts) to allow easy monitoring of the work progress and the use of the resources.

**2.5. Quality of the proposed measures to combat crime**  
The authors wish to draw attention to the fact that the proposed measures are not intended to replace the existing measures, but to complement them.

[illegible]

100

**13.4** is the model decomposition of stress. This is the theoretical part of the research where the stress-stroke shape (71) is used to further extend research on stress-stroke shapes (32) based on stress-shape and model theory and related to the recently developed model decomposition based method (53). This procedure developed under the 13.4 will be linked to the stress analysis researchers of the last initiation and the following initiation. **13.5** is development of the review and documentation. It will be the last stage of the project and it will be opened by the greater audience through the Gold key ceremony. The online conference

enabled by wind turbines is discussed in Fig. 4. The OpVtVs for the cycle counting in the frequency domain, a complete theoretical and experimental part, the theoretical part is application of multi-modal criteria as the result of the T2.2 to enable VF methods for cycle counting in frequency domain. The procedures and the experience from the research group will contribute to the

**M2:** Implementation of the OpenFOAM method in open source Python package - beta version

to be used in training. Next, we [train](#) the use of 100k for solving collaborative tasks, generation of the online documentation using Sphinx, writing of classes and functions in Python. In training [this](#) will create the proper software and how to use it to maintain it. [This](#) is development of the method for identification of the material from using the 100 camera. [This](#) development of the data source and documentation. Most of the work

T3-2 will be done in parallel with WPI and the work of T3-1 in parallel with WP2. This is because the product from the research to compare code, how actions taken within WPI will ensure that the developed code will be suitable to a wide audience. This means that the code produced in the GRISS repository is tested using the methods for testing functions and objects in Python and the more, P2, P4 – workshop for high school students, P3 – lesson plans.

1. Identification: A1 – references to WPI; A2 – submission to IFI; A3 – submission to IFIS. After each submission, a review of 20% and a final one report will be discussed in the management meeting including recommendations report.

[illegible]

shown in the Gantt-like display is tested, using the method for testing business and objects in Papyrus and that it is documented using the Upparel. The costs of the tests are also shown in the Gantt-like display.

Legend:

- Yellow: submission
- Red: test
- Blue: management
- Green: test results
- Dark: test

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Call: **H2020-MSCA-IF-2020**

► Score: 95.2% (94%)

► Strength:

*The researcher demonstrates independent thinking and a good professional experience in the area of the fellowship. The researcher's general skills in signal processing and dynamics can get a meaningful improvement from the development of the project. The involvement of a company in the action will also help widening the viewpoints outside research, with the contribution from industry.*

## Path of the NOSTRADAMUS (6)

Selected strength:

- ▶ *The actions such as lab scale simplified structures, summer schools on image based identification techniques and YouTube videos are very effective to communicate the results to a large and diversified audience.*

Selected weakness:

- ▶ *The strategy to disseminate the action's results to industry is not clearly presented. Apart from the transfer of knowledge to the partner via the secondment, insufficient direct actions of dissemination towards industry are foreseen.*

**Thank you!**