**NAME: Nicholas James Tustison**

**Purpose:** The Annual Faculty Review is used as an opportunity to celebrate faculty successes, develop mechanisms for continued success, and provide guidance and feedback for professional advancement. *Please understand that the more accurate the information you provide the more productive and meaningful your review will be.* Thank you for your thoughtful reporting efforts.

1. ***CURRICULUM VITAE***

Please submit an updated CV, in School of Medicine P&T format, when you submit this report.

Reference website: [P&T Resources | Faculty Affairs and Development (virginia.edu)](https://faculty.med.virginia.edu/facultyaffairs/advancement/pandt/pt-resources/)

1. ***ADMINISTRATIVE SERVICE & ACTIVITIES***
2. **ADMINISTRATIVE ACTIVITIES**
   1. **Current Appointments/Roles (Including % effort for each role)**

*Directions: Please report relevant percent effort types per role:*

*% Clinical Effort % Teaching Effort % Scholarly Effort*

*% Administrative Effort % Other Purchase Service Agreement Activities Effort*

* + - **Division**
    - **Department**
    - **School of Medicine**
    - **Health System**
    - **University (UVA/UPG)**
    - **Other**
  1. **Administrative Initiatives**

\*Note: Include topic and timeframe, and brief descriptive narrative

* 1. **\_\_\_0\_\_\_\_ Number of staff reporting to you**
  2. **\_\_\_0\_\_\_\_ Number of faculty reporting to you**

1. **PROFESSIONAL COMMITTEE SERVICE (Including Scientific & Teaching), COUNCILS, SPECIALTY SOCIETIES AND ORGANIZATIONS**
   1. **Scientific Program Committees**

*(ie. RSNA; Include your role & note any committees you chair)*

SPIE Medical Imaging Program Committee:

[Biomedical Applications in Molecular, Structural, and Functional Imaging](https://www.spiedigitallibrary.org/conference-proceedings-of-spie/11317.toc)

* 1. **NIH Study Sections**

*(Include your role & note any committees you chair)*

* 1. **Society/Council/Legislative/Organization - International**

***(Include your role & note any committees you chair)***

Insight Software Consortium Council (secretary)

* 1. **Society/Council/Legislative/Organization – National/Regional**

(*Include your role & note any committees you chair)*

1. **Society/Council/Legislative Organization – State/Regional**

*(Include your role & note any committees you chair)*

1. **Society/Council/Legislative/Organization – Local/Area**

*(Include your role & note any committees you chair)*

1. **School of Medicine/Health System/UPG/University**

*(Include your role & note any committees you chair)*

1. **Department/Division-Level**

(Include your role & note any committees you chair)

*\*Note: Be sure to include education committees in this section.*

1. **OTHER PROFESSIONAL & SERVICE ACTIVITIES**

(eg. Board service, society/org leadership roles/offices, program/session coordination, service roles other than committee work, etc.)

* 1. **Society/Council/Legislative/Organization - International**

*(Include your role.)*

* 1. **Society/Council/Legislative/Organization – National/Regional**

*(Include your role.)*

1. **Society/Council/Legislative Organization – State/Regional**

*(Include your role.)*

1. **Society/Council/Legislative/Organization – Local/Area**

*(Include your role.)*

1. **School of Medicine/Health System/UPG/University**

*(Include your role.)*

1. **Department/Division-Level**

*(Include your role.)*

1. ***SCHOLARLY ACTIVITIES***
2. **BIBLIOGRAPHY**

**PEER-REVIEWED**

Note: Where appropriate, use \* to designate trainees, use ~ to designate corresponding authorship, and use ^ to indicate presenters.

* 1. **Peer-Reviewed Papers/Publications between April 1, 2021 – March 31, 2022**

**and Impact Factor** \*Note: Do not include manuscripts that are in press, accepted, or submitted.

1. Andrew A. Chen, Joanne C. Beer, **Nicholas J. Tustison**, Philip A. Cook, Russell T. Shinohara, Haochang Shou, for the Alzheimer’s Disease Neuroimaging Initiative. Mitigating Site Effects in Covariance for Machine Learning in Neuroimaging Data.  *Human Brain Mapping*, 43(4):1179-1195, Mar 2022.
2. Dana L McMakin, Adam Kimbler, **Nicholas J. Tustison**, Jeremy W Pettit, and Aaron T. Mattfeld. Negative Overgeneralization is Associated with Pattern Completion in Peripubertal Youth. *Social Cognitive and Affective Neuroscience*, 17(2):231-240, Feb 2022.
3. Andrew T. Grainger, Arun Krishnaraj, Michael H. Quinones, **Nicholas J. Tustison**, Samantha Epstein, Daniela Fuller, Aakash Jha, Kevin L. Allman, Weibin Shi. Deep learning-based quantification of abdominal subcutaneous and visceral fat volume on CT images.  *Academic Radiology*, 28(11):1481-1487, Nov 2021.
4. Mu He, Kun Qing, **Nicholas J. Tustison**, Zach Beaulac, Tabitha W. King, Thomas B. Huff, Mikell Paige, Kranthikiran Earasi, Roselove Nunoo-Asare, Sarah Struchen, Marie Burdick, Zhimin Zhang, Alan Ropp, Grady W. Miller, James T. Patrie, Jaime F. Mata, John P. Mugler III, and Yun M. Shim. Characterizing gas exchange physiology in healthy young electronic-cigarette users with hyperpolarized 129Xe MRI: a pilot study. *International Journal of Chronic Obstructive Pulmonary Disease*, 16:3183-3187, Nov 2021.
5. **Nicholas J. Tustison**, Talissa A. Altes, Kun Qing, Mu He, G. Wilson Miller, Brian B. Avants, Yun M. Shim, James C. Gee, John P. Mugler III, and Jaime F. Mata. Image- vs. histogram-based considerations in semantic segmentation of pulmonary hyperpolarized gas images. *Magnetic Resonance in Medicine*, 86(5):2822-2836, Nov 2021.
6. Jaime Mata, Steven Guan, Kun Qing, **Nicholas Tustison**, Yun Shim, John P Mugler 3rd, Talissa Altes, Jhosep Huaromo, Borna Mehrad. Evaluation of Regional Lung Function in Pulmonary Fibrosis with Xenon-129 MRI. *Tomography*, 7(3):452-465, Sep 2021.  Dr. Tustison provided direction with respect to the software used and guidance on analysis protocols.
7. William Teague, Jaime Mata, Kun Qing, **Nicholas Tustison**, John Mugler, Craig Meyer, Eduard de Lange, Michael Shim, Kristin Wavell, Talissa Altes. Measures of Ventilation Heterogeneity Mapped with Hyperpolarized Helium-3 (HHe-3) MRI Demonstrate a T2-High Phenotype in Asthma.  *Pediatric Pulmonology*, 56(6):1440-1448, Jun 2021.
8. **Nicholas J. Tustison**, Philip A. Cook, Andrew J. Holbrook, Hans J. Johnson, John Muschelli, Gabriel A. Devenyi, Jeffrey T. Duda, Sandhitsu R. Das, Nicholas C. Cullen, Daniel L. Gillen, Michael A. Yassa, James R. Stone, James C. Gee, and Brian B. Avants for the Alzheimer’s Disease Neuroimaging Initiative. The ANTsX ecosystem for quantitative biological and medical imaging. *Scientific Reports*. 11(1):9068, Apr 2021.
   1. **Peer-Reviewed Papers/Publications that are in press or accepted**

**between April 1, 2021 – March 31, 2022**\*Note: Please differentiate.

Zhuang Song, Anithapriya Krishnan, Laura Gaetano, **Nicholas J. Tustison**, David Clayton, Alex de Crespigny, Thomas Bengtsson, Xiaoming Jia, and Richard A.D. Carano. Deformation-based morphometry identifies deep brain structures protected by ocrelizumab. *NeuroImage: Clinical*.

* 1. **Peer-Reviewed Papers/Publications that have been submitted**

**between April 1, 2021 – March 31, 2022**

**NON PEER-REVIEWED**

Note: Where appropriate, use \* to designate trainees, use ~ to designate corresponding authorship, and use ^ to indicate presenters.

1. **Non Peer-Reviewed Papers/Publications – published April 1, 2021 – March 31, 2022**
2. **Non Peer-Reviewed Papers/Publications – in press or accepted between April 1, 2021 – March 31, 2022** \*Note: Please differentiate
3. **Non Peer-Reviewed Papers/Publications – submitted between April 1, 2021 – March 31, 2022**

**BOOKS/BOOK CHAPTERS**

* Note: Identify invited chapters
* Note: Where appropriate, use \* to designate trainees, use ~ to designate corresponding authorship, and use ^ to indicate presenters

1. **Book chapters published between April 1, 2021 – March 31, 2022**
2. **Books published between April 1, 2021 – March 31, 2022**

**SHORT COMMUNICATIONS, EDITORIALS, COMMENTARIES, & LETTERS TO THE EDITOR**

Note: Where appropriate, use \* to designate trainees, use ~ to designate corresponding authorship, and use ^ to indicate presenters

1. **Published between April 1, 2021 – March 31, 2022**
2. **In press or accepted between April 1, 2021 – March 31, 2022**

\*Please differentiate

1. **Submitted between April 1, 2021 – March 31, 2022**

**PUBLISHED, PEER-REVIEWED ABSTRACTS, POSTERS & TECHNICAL/EDUCATIONAL EXHIBITS**

Note: Where appropriate, use \* to designate trainees, use ~ to designate corresponding authorship, and use ^ to indicate presenters.

There is now a separate section for reporting presentations that were not published.

1. **Published peer reviewed abstracts between April 1, 2021 – March 31, 2022**
2. **Published peer reviewed posters between April 1, 2021 – March 31, 2022**

\*Titles and co-authors

1. **Published peer reviewed technical/educational exhibits between April 1, 2021 – March 31, 2022**

**DIGITAL, ONLINE, & AUDIO-VISUAL PUBLICATIONS: April 1, 2021 – March 31, 2022**

Note: Include authors, contributors, title, purpose, description, duration, medium or format, URL if available.

Note: Where appropriate, use \* to designate trainees, use ~ to designate corresponding authorship, and use ^ to indicate presenters

1. **EDITORIAL ACTIVITIES**
2. **Journal Editorships/Associate Editorships**
3. **Journal Guest Editorships**
4. **Journal Editorial Board Service**
5. **Book/Manuscript Reviews (Including book/journal title)**
6. **RESEARCH ACTIVITIES**
   1. **Financial Resources (Grants & Contracts)**

**Note: Do not include unfunded research efforts in this section. Report UREs in #2 below.**

* + 1. **Active grants for which you are Principal Investigator, Co-Principal Investigator or site PI**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Title** | **Agency (NIH, State, Foundation, Internal, Industry)** | **Your**  **% effort** | **UVa Direct Costs** | **UVa Total Costs** | **If industry, percent of total recruitment achieved** | **Start Date** | **Expected end date** |
| **R01 HL133889-01A1, ITK-Lung: A Software Framework for Lung Image Processing and Analysis** | **NIH** | **40%** |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

* + 1. **Active grants for which you are a Co-Investigator**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Title** | **Agency (NIH, State, Foundation, Internal, Industry)** | **PI** | **Your**  **Percent effort** | **Start Date** | **Expected end date** |
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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Proposal Title** | **Your Role:**  *PI*  *Co-PI*  *Site PI*  *Co-I* | **Agency (NIH, State, Foundation,**  **Internal, Industry)** | **Submission Date** | **Approximate Date of Review** | **Result of Review:** *Funded,*  *Pending funding, Not funded, Pending review* | **NIH only**  **Priority Score/ percentile, or date of review** | **UVa Direct Costs** | **Your % Effort** |
| **Advanced Normalization Tools** | **Site PI** | **NIH** | **9/10/2021** | **1/1/2022** |  | **2%** |  | **50%** |
|  |  |  |  |  |  |  |  |  |

* + 1. **Grants submitted (list as PI, co-PI, site PI, or co-I) between April 1, 2021 – March 31, 2022**
  1. **Active Unfunded Research Efforts**
  2. **Areas of Research Interest**

Deep learning in medical imaging:

* White matter hyperintensity segmentation
* Medial temporal lobe parcellation

UK Biobank data analysis

* 1. **Research Collaboration/Team Science (Grants, papers, or other collaborations with faculty from other departments or UVA schools)**

*Title, Dates, % effort, current year direct costs, current year indirect costs, funding organization or publication name*

1. **Current Projects/Programs (Including new research programs or expansion of current research programs)**
2. **Research Operations Enhancements**
3. **Inventions: April 1, 2021 – March 31, 2022**
   1. **Issued Patents**
   2. **Full Patent Applications Filed**
   3. **Provisional Patent Applications Filed**
   4. **Disclosed Inventions**
4. **Registered Copyrighted Materials: April 1, 2021 – March 31, 2022**
5. **Licensing Activity: April 1, 2021 – March 31, 2022**
6. **Other, Not Included Above**
7. **\_\_\_\_\_\_\_\_# of Patients Involved in Clinical Trials**
8. **\_\_\_\_\_\_\_\_# of Investigator Initiated Clinical Trials**
9. **PEER REVIEWED SCIENTIFIC PRESENTATIONS**

**April 1, 2021 – March 31, 2022**

Note: Where appropriate, use \* to designate trainees and use ^ to indicate presenters

1. **Scientific Abstract Presentations**
2. **Poster Presentations**
3. **Technical/Educational Exhibit Presentations**
4. **VISITING PROFESSORSHIPS & INVITED ROLES**

**(Grand Rounds, Invited Lectures, Workshops & Other Professional Meeting Roles)**

* 1. **Visiting Professorships between April 1, 2021 – March 31, 2022**
  2. **Grand Rounds & Invited Lectures between April 1, 2021 – March 31, 2022**

\*Note: Please include both internal and external lectures and list specific talk titles and organization.

1. **Workshop/Session Presenter/Moderator/Panelist between April 1, 2021 – March 31, 2022**
2. **OTHER FACTORS WHICH YOU FEEL SHOULD BE CONSIDERED**

(IE. Research equipment, consignments, undergraduate education, etc.)

1. ***CLINICAL ACTIVITIES***
2. **CLINICAL SERVICES FOR WHICH YOU ARE RESPONSIBLE (April 1, 2021 – March 31, 2022)**

\*Note: Include description and % clinical effort

1. **PATIENT CARE & CLINICAL PRODUCTIVITY (April 1, 2021 – March 31, 2022)**
   1. **Work RVUs vs. AAARAD Benchmarks (%)**

*Dr. Matsumoto will share this data with you during your review. You do not need to seek and report it here.*

* 1. **Outpatient Clinic Visits**

1. **CLINICAL/OPERATIONAL ENHANCEMENTS (April 1, 2021 – March 31, 2022)**
   1. **New Clinical Programs**
   2. **Clinical Program/Service Expansion**
   3. **Operational Enhancements**
2. **MULTIDISCIPLINARY CLINICAL TUMOR BOARDS OR ROUNDS (eg. PICU):**

**April 1, 2021 – March 31, 2022** \*Note: List name and frequency

1. **CALL COVERAGE (July 1, 2021-March 31, 2022)**
2. **\_\_\_\_\_\_ Total # of Weeknights (Monday-Thursday)**
3. **\_\_\_\_\_\_ Total # of Weekends (Friday-Sunday)**
4. **Holidays** (Source: UVA Health System calendar of clinic holiday schedule)

\_\_\_\_\_\_\_ New Year’s Day

\_\_\_\_\_\_\_ Memorial Day

\_\_\_\_\_\_\_ Independence Day

\_\_\_\_\_\_\_ Labor Day

\_\_\_\_\_\_\_ Thanksgiving Day

\_\_\_\_\_\_\_ Day after Thanksgiving

\_\_\_\_\_\_\_ Christmas Day

\_\_\_\_\_\_\_ **Total # of holidays covered**

1. **CLINICAL QUALITY INITIATIVES**
   1. **Please describe your Quality Improvement (QI) project for FY21. Then, describe what QI projects you plan to do for FY22.**
   2. **Other quality projects/initiatives**
2. ***TEACHING/EDUCATIONAL ACTIVITIES***

Include Basic Science, Practice of Medicine, Clerkship, Physical Diagnosis/Tutorials; describe any new programs to which you have contributed.

1. **CLASSROOM, ONLINE, DIDACTIC LECTURE, SEMINAR, CLINICAL/CASE CONFERENCE OR TEACHING LABORATORY: April 1, 2021 – March 31, 2022**
   1. **UNDERGRADUATE, GRADUATE & POST-DOC**

\*Note: Indicate new/repeated, lecture title/topic/course number, prep time in hours, duration

* 1. **RESIDENT/FELLOW**

\*Note: Indicate new/repeated, lecture title/topic/course number, prep time in hours, duration

* 1. **OTHER AUDIENCES**

(Eg. Technologists, APPs, nurses, staff colleagues, multidisciplinary, industry, insurance companies, community, etc.) \*Note: Indicate new/repeated, lecture title/topic/course number, prep time in hours, duration.

1. **CLINICAL TEACHING (In clinic, procedure room, or reading room; at bedside or on rounds)**

**April 1, 2021 – March 31, 2022** \*Note: Indicate which location, audience type and description.

1. **CLINICAL TRAINEES**
2. **JOURNAL CLUBS LED**

\*Note: Indicate articles reviewed.

1. **CURRENT RESEARCH CONCERNING TEACHING: April 1, 2021 – March 31, 2022**
2. **DEVELOPMENT OF TEACHING CURRICULUM, RESOURCES &/OR METHODS:**

**April 1, 2021 – March 31, 2022**

(Includes program development, evaluation methods or program supervision methods, other teaching materials)

1. **FORMAL STUDY TO IMPROVE TEACHING ABILITIES: April 1, 2021 – March 31, 2022**

\*Note: Indicate activity type, title/name, duration.

1. **OTHER EDUCATIONAL CONTRIBUTIONS/SERVICE NOT NOTED ELSEWHERE**
2. ***ADVISING & MENTORING/COUNSELING ACTIVITIES***
3. **FORMAL ADVISING & MENTORING ACTIVITIES: April 1, 2021 – March 31, 2022**

Including dissertation committees, graduate thesis advisory or director roles, advising/mentoring of junior faculty, peers or colleagues, etc.; please provide the below-noted data points, per advisee or project, and be sure to indicate the following advisee types where relevant:

Pre-doctoral students

Doctoral/Post-doctoral students

Post-doctoral Fellows on training grants

Post-doctoral Fellows in funded fellowships

Unfunded Post-doctoral Fellows

Medical Scientist Training Program students

Medical Student Summer Research Program students

Use these reporting fields:

**Date(s)**

**Advisee Name(s)**

**Advisee Type/Affiliation**

**Your Role**

**Activity/Project Title/Topic**

**Description**

**Outcome(s)**

1. **COUNSELING ACTIVITIES: April 1, 2021 – March 31, 2022**

Please provide the noted data points, per advisee or group topic, for those you’ve counseled, including professional colleagues, trainees, students, etc.

**Date(s)**

**Advisee Name(s)**

**Advisee Type/Affiliation**

**Your Role**

**Activity/Project Title/Topic**

**Description**

1. Were you a Summer Medical Leadership Program faculty participant during this past summer?

YES X NO

If yes, please provide details of your session as appropriate:

1. ***ENDOWED PROFESSORSHIPS, HONORS, AWARDS, & RECOGNITION***

**April 1, 2021 – March 31, 2022**

*\*Note: Include both major and internal – i.e. positive comments and compliments from patients, staff, referring physicians, etc.*

1. **ENDOWED PROFESSORSHIPS**
2. **NATIONAL/INTERNATIONAL HONORS/AWARDS/RECOGNITION**
3. **STATE/REGIONAL HONORS/AWARDS/RECOGNITION**
4. **LOCAL/AREA HONORS/AWARDS/RECOGNITION**
5. **INSTITUTIONAL HONORS/AWARDS/RECOGNITION**
6. **DEPARTMENTAL HONORS/AWARDS/RECOGNITION**
7. **INTERNAL RECOGNITION**

(i.e. letters of recognition from patients, referring physicians, etc.)

1. ***LEAVE TIME AWAY FROM THE DEPARTMENT***
2. **\_\_\_\_\_\_\_ Total number of academic days assigned**
3. **\_\_\_\_\_\_\_ Number of meeting/professional development days used**
4. **\_\_\_\_\_\_\_ Number of vacation days used**
5. **\_\_\_\_\_\_\_ Number of maternity/paternity leave days used**
6. **\_\_\_\_\_\_\_ Number of sick days used**

**\_\_\_\_\_\_\_ TOTAL NUMBER OF DAYS AWAY FROM THE DEPARTMENT**

1. ***PROFESSIONAL & BUSINESS DEVELOPMENT, COMMUNITY SERVICE, AND***

***CAREER ACHIEVEMENT GOALS***

1. **\_\_\_\_\_ Number of CME credits earned: April 1, 2021 – March 31, 2022**

**Requirement:** Please submit a detailed list of your CME credits to Terry Crow to include: Course name, date, and # of CMEs. Specific lecture titles are NOT required. Please contact Terry Crow for assistance. This documentation is not needed in the Chair’s Office.

1. **PROFESSIONAL DEVELOPMENT ACTIVITIES**

Eg. Leadership in Academic Matters [LAM] or other leadership training, Promotion & Tenure Sessions, department development or institutional lectures

1. **RELEVANT COMMUNITY SERVICE**

Eg. Miscellaneous activities that have enhanced your professional development or the growth, improvement and/or visibility of the department, such as volunteer work at the Free Clinic, Day of Caring, community service, diversity initiatives, Albemarle Medical Society, Radiology interest groups, etc.

Use these reporting fields:

**Activity Name**

**Duration**

**Frequency**

1. **BUSINESS DEVELOPMENT**

\* Include purpose, description, new revenues, and ROI

1. **ACHIEVEMENTS AND GOALS**
   1. **Briefly describe what you consider your major achievements this year:**

* Publication of the “Histograms” paper with Jaime Mata.
* Development of DeepFLASH --- a medial temporal lobe parcellation pipeline using deep learning.
* ANTsXNet processing of the UK Biobank MRI data.
  1. **Goals: List at least three professional/academic goals for the coming year:**

**Goal 1:**  Writing and publication of ANTsXNet and UK Biobank paper.

**Goal 2:** Development of WMH segmentation deep learning algorithm.

**Goal 3:** Getting ANTsX development grant.

* 1. **Describe your 3-5 year goals, and describe what steps you will take this year towards achieving these goals:**

I will continue to work towards full professorship. I have both on-grounds and off-grounds collaborators with whom I will continue to work towards papers, grants, etc.

* 1. **How can the department help you succeed in achieving the goals you described in items 2 & 3 above?**

The current support provided and, in particular, the ability to telecommute is sufficient.

* 1. **Additional comments:**

1. ***COMMENTS FROM THE CHAIR***
2. ***ACKNOWLEDGMENT***

Your signature indicates your acknowledgement of having discussed your annual review and teaching evaluations with the Department Chair.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Signature: Faculty Member Date of Review

***(Leave blank until your meeting)***

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Signature: Department Chair Date of Review